LETTERS AND PAPERS

ON

AGRICULTURE, PLANTING, &c.

ADDRESSED TO THE

BATH AND WEST OF ENGLAND SOCIETY,

FOR THE ENCOURAGEMENT OF

Agriculture, Arts, Manufactures, and Commerce.

VOLUME VII.

PRICE SIX SHILLINGS.

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ON

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SELECTED FROM

THE CORRESPONDENCE

OF THE

BATH AND WEST OF ENGLAND SOCIETY,

FOR THE ENCOURAGEMENT OF

AGRICULTURE,
ARTS,
MANUFACTURES,
AND COMMERCE.

VOL. VII.

BATH, PRINTED, BY ORDER OF THE SOCIETY,
BY R. CRUTTWELL;
AND SOLD BY C. DILLY, POULTRY, LONDON,
AND BY THE BOOKSELLERS OF BATH, BRISTOL, SALISBURY,
GLOCESTER, EXETER, &c. &c.

M DCC XCV.

Jos: Banks

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ADVERTISEMENT.

THE publick is here preſented with the Seventh Volume of Letters, Papers, and Extracts from the Correſpondence of the Bath and Weſt of England Society: the publication of which, from incidents not foreſeen, has been ſeveral months later than was, in courſe, expected.

Of the contents, notwithſtanding that inequality of merit to which every book of this nature is incident, the committee of ſuperintendance hopes the publick will not think unfavourably. The repeated and flattering proofs which the Society has received of the publick partiality to its volumes, have been noticed with pleaſure, and are hereby again acknowledged with gratitude and reſpect.

This Society, which has now been eſtabliſhed near eighteen years, has uniformly exerted its endeavours to promote, as its *main* object, the improvement of *Agriculture*, and thoſe other branches of knowledge which appeared to be moſt nearly connected with it. The grand inducement to this bent of attention, was a conviction that ſuch a purſuit was moſt important to the fundamental intereſts of the nation.

Since the publication of the ſixth volume, a ſtrong teſtimony has been given to the national importance of agricultural

'tural knowledge, by the eſtabliſhment of a National Board of Agriculture. The happy effects of that eſtabliſhment, in the general diffuſion of a ſpirit of improvement, (more than ever neceſſary to Britain) this Society embraces, with confidence, the preſent opportunity of anticipating. And though, from the ſcope and reſources of the Board, a provincial ſociety may hope to be conſidered as aiding the general cauſe only at an humble diſtance, yet that conſideration will not be deemed a reaſon for any relaxation in the ardour of this Society. On the contrary, ſuch an event will not fail to operate as an encouragement to further vigilance, and more ſtrenuous exertion. And that the endeavours of this Society to become more and more uſeful, may be crowned with the greater ſucceſs, the correſpondence of all ingenious and publick-ſpirited gentlemen, deſirous of aiding its views, is again requeſted.

The General Index to the Seven Volumes, which accompanies this, it is preſumed will be found an agreeable and uſeful article;—and whatever improvements may be further ſuggeſted, in the general œconomy, or publications of the Society, will always be liſtened to with attention and reſpect.

BATH, Jan. 1, 1795.

ERRATA.

P. 53. lines 6 and 7 are tranſpoſed.
69. l. 1, } read *manufacture.*
250. l. 19, }
350. l. 20. for *bare* read *bear.*

LETTERS

TO THE

BATH AND WEST OF ENGLAND AGRICULTURE SOCIETY.

ARTICLE I.

Observations on the Management of Woods, and on the preſent ſtate thereof, particularly in the Weſtern Counties.

[By Mr. DAVIS, of LONGLEAT, Steward to the MARQUIS of BATH.]

IN conſequence of the premium offered by the Bath and Weſt of England Society, in the year 1792, "To the perſon who, on or before the firſt "of November 1792, ſhall write and ſend to that "Society, the beſt practical treatiſe on Planting and "the Management of Woods; together with the "preſent ſtate of the woods of this country, par-"ticularly in the Weſtern Counties;" the writer hereof, who has, for near thirty years paſt, been employed in the actual management of wood-land, to a very great extent, and who has, at this time, upwards of 2000 acres under his care, in the counties of Hants, Wilts, Dorſet, Somerſet,

Glouceſter, Devon, and Cornwall, begs leave to offer his obſervations on the ſubject propoſed by the Society. He has confined thoſe obſervations to the management, and preſent ſtate, of what is generally called *Coppice-Wood*, and *of the Timber growing in ſuch Coppices*, as ſuppoſing that to be the object of the Society's preſent enquiries.

Uſes of Underwood, or Coppice-wood.—The great and never-failing demand for the various articles into which *underwood* is convertible, and which muſt be ſupplied by the immediate growth of this kingdom, has always made, and will continue to make, the preſervation of woods, an object of attention; but as it is a work, not only of expence, but of time, to bring them to perfection, it behoves thoſe who are in poſſeſſion of old well-planted woods, to keep them from going to decay; and, if their woods have ſuffered by age or neglect, to do their endeavours to reſtore them; for, notwithſtanding the preſent almoſt general uſe of pit-coal has conſiderably diminiſhed the conſumption of wood and charcoal, for domeſtic purpoſes, the demand is ſtill ſo very great for underwood, that woods will not only produce ſufficient to pay *the rent* of the land on which they grow, but, if in good ſituations, and well managed, will produce, at leaſt *half another rent*, by the timber which may be raiſed in them, without any material injury to the underwood.

It

It is a well-known fact, that woods are the beſt and moſt natural nurſeries for timber, (particularly for oak and aſh) and that the underwood contributes greatly by its ſhelter and protection to the growth of trees; but it has never yet been ſufficiently conſidered, that it is almoſt incompatible with the preſent improved ſtate of agriculture, and management of fences, to raiſe trees (except elms) to any great ſize, *in hedge-rows*; becauſe the impoveriſhment of the ſoil by the roots, and the injury to the crops and fences by the dropping and ſhade of the tops, more than counterbalance the advantage to be gained by the growth of the timber. And the late acts of parliament for the preſervation of the public roads, having, for good reaſons, ordered all timber near ſuch roads to be cut, have deprived the land-owners of the power of planting or preſerving trees in ſuch ſituations, and furniſhed an additional reaſon for the preſervation of woods already planted, and for planting others where neceſſary, and where the ſoil and ſituations are adapted to their growth.

The great demand for underwood in the Weſtern counties, is for the following purpoſes:

Aſh-Poles.—For hop-poles, (in Hants) ſheepcribs, rind-hoops for barrels and for rigging of ſhips, ſpade-handles, rake-ſtems, pick-ſtems, and other

implements of huſbandry,—coachmakers, chair-makers, wheelwrights, and carpenters uſes, &c. &c.

Hazel.—Sheep-hurdles in Hants, Wilts, and Dorſet; ſpars for thatching; peaſe and bean ſticks, dead hedges, &c. &c.

Alder, Willow, Birch, &c.—Poles for rafters, pattens, clogs, ſhoe-heels, turner's-ware; coalpit uſes, (particularly in the Mendip pits in Somerſetſhire) rails for fencing, chairmakers uſes, &c.

Oak.—For rough domeſtick uſes; and the bark for tanning.

General uſes of all.—Faggots, particularly for fuel in farm-houſes, and for baking; bavins for lighting fires in towns; thorns and refuſe for dead hedges; and particularly charcoal for thoſe manufactories to which pit-coal is not applicable, as well as for ſtoves in kitchens, &c.

Nature of the Growth of Underwood, Cauſe of its Decay, &c.—The ſtocks (or, as they are uſually called in the weſtern counties, "Stools") which produce Underwood or Coppice-wood, being in fact only *pollard trees growing under ground*; it is obvious that the produce of thoſe ſtocks muſt, like the ſhrouds of pollard trees, be the moſt abundant, when

when the parent ſtocks are in the greateſt perfection;—that until they attain that perfection, the produce muſt be ſmall; and that, when they are paſt that perfection, they gradually decline; the ſhoots from them become weaker and fewer every ſucceſſive cutting, and the ſtocks finally decay and die.

It therefore follows, that to prevent the decay of woods, it is neceſſary, from time to time, to renew them by raiſing new ſtocks, to ſupply the place of thoſe, which, from time to time, wear out and decay.

But beſides the conſtant and regular decay of age, to which all woods are liable, there are many injuries to which they are ſubject, and which will very ſpeedily and prematurely bring on their decay, unleſs proper and effectual methods are taken to prevent thoſe injuries.

The firſt is, the pernicious cuſtom of ſuffering cattle to feed in woods, under an idea that, after they are of a certain age, (uſually ſeven years) the ſhoots are grown out of the way, and that the cattle can do no harm.

Where (unfortunately for the owner of woods) a public right of commonage in woods ſtill exiſts, it is uſeleſs to point out any methods of improving them. For although, in ſtrong, thriving, flouriſhing woods, it is poſſible that cattle may do *but little harm* to the underwood, after it is ſeven or eight years old; yet all young plants, which either ſpring

up ſpontaneouſly, or are planted in them, will be liable to be cropped and kept down by the cattle, and few of them can come to perfection.

And in weak decaying woods, there is *always* a great deal of the underwood ſo low, as *never* to get out of the reach of cattle, but is continually liable to be cropt and kept down by them, and the decay of the ſtocks is thereby much haſtened.

Another cauſe of early decay of woods, is *the want of draining* ſuch parts of them as are ſubject to be moiſt and damp; *nothing being ſo prejudicial to wood as too much wet.*

Another cauſe of decay, is *the cuſtom of ſuffering woods to grow too old before cutting*, whereby the ſtrong ſhoots ſmother the weak ones, and by their dropping, kill the ſtocks on which they grow. To this may be added the practice of permitting the *buyer* to cut the wood, thereby making it *his intereſt* to deſtroy every ſapling, and *to cut the underwood as cloſe to the ſtock as poſſible*; (which in old woods is very prejudicial to the ſucceeding ſhoots)—as alſo the cuſtom of not obliging the buyers *to clear the woods early in the ſummer*, ſo as to prevent the new ſhoots from being injured by their cattle and carriages.

To recover Decayed Woods.—If it be profitable to plant new woods, it is certainly much more profitable to protect thoſe that are already planted, to fill

fill them up where thin, and to reſtore them when in a ſtate of decay. The expence is not only leſſened by the ſaving of new fences, but the profit is greatly increaſed, by the rapid growth of the wood, when planted in ſituations that are ſheltered by other wood already planted.

In thoſe woods where ſaplings ſpring up in great numbers *ſpontaneouſly*, their growth ſhould by all means be encouraged. At the time of cutting the underwood, theſe ſaplings will perhaps be 14 or 15 years old; and it might appear proper, after leaving for timber trees ſuch as are ſtrait and handſome, to cut off the reſt for underwood. But great part of the ſaplings ſo cut off *at that age*, will not be large enough to produce ſhoots *ſufficiently ſtrong* to get up as faſt as the other underwood. *Theſe ſhoots* would therefore ſuffer, and the ſtocks would never come to perfection. It is, therefore, more adviſeable not to cut off ſuch ſaplings as are intended for underwood, until the *ſecond cutting* of the wood, when (being perhaps near 30 years old) they will throw out ſhoots *ſtrong enough* to fight their way, and keep pace with the ſurrounding underwood.

Where ſaplings do not ſpring up in abundance ſpontaneouſly, young trees muſt be planted; part of which may be preſerved for timber, and the remainder left, to be ſtubbed off at a proper time for underwood.

Kinds

Kinds of Wood to be planted.—The kinds of wood to planted in coppices, either in making new ones, or filling up old ones, muſt be regulated, partly by *the demands of the country*, but chiefly by the *peculiar aptitude of the ſoil and ſituation* to produce particular ſorts. *Let nature be your guide in planting, and you will ſeldom do wrong.*

Particular ſoils and particular ſituations will always favour particular kinds of trees; we need not look for the *reaſon*, but only for the *fact*. The chalk hills of Hampſhire are peculiarly proper for beech. The flinty loams and clays of the ſame county, for oak and aſh;—the moſſy ſteep ſides of the Wiltſhire downs, for hazel; and the ſands of the ſame county for aſh;—the rugged and almoſt naked rocks of Mendip, in Somerſetſhire, (near Cheddar) produce the lime tree and the walnut in the greateſt luxuriance, and on the higheſt parts of the ſame Mendip hills, where no other tree can ſtand the ſea breeze, ſycamore flouriſhes as well as in the moſt fertile valley.

Taking the general demand of countries, and the peculiarities of different ſoils, into conſideration, there is no kind of wood ſo *generally* proper for planting in coppices, as aſh. The value of aſh-poles being at leaſt one-third more, and frequently as much again, per hundred weight, as that of other poles, (being applicable at all ſizes to ſome uſeful purpoſe or other) the timber being always in

requeſt,

requeſt, and ſaleable at any *age* or *ſize*, at almoſt the price of oak; and the wood itſelf being as quick a grower as any, and quicker than moſt; and above all, there being but few ſoils from the blackeſt and wetteſt bogs, to the higheſt and moſt expoſed mountains, where it will not grow; are reaſons why aſh is one of the moſt profitable woods to plant in ſuch coppices as are favourable to its growth. In ſoils and ſituations where aſh does not grow kindly, let ſuch other ſorts of wood be planted as appear to thrive beſt *in ſimilar ſoils and ſituations in the ſame country.*

Spaniſh cheſnut, though not ſo general a grower as aſh, is a moſt excellent wood, either for timber or underwood, and wants only to be more known to be higher in eſtimation. It partakes much of the properties of oak, but excels it in two points, viz. that it grows faſter, and that the ſap part of the timber is firmer and leſs corruptible.

To fill up woods that are grown thin, by age or neglect, the proper time is one year, or at the *utmoſt* two years, after the underwood is cut. The young plants ſhould be eight or ten feet high, and an inch and an half in diameter at the ground, and ſhould be planted without cutting off. If the ſoil be dry, no other preparation is neceſſary than barely digging the holes for the plants. If wet, deep drains ſhould be made to take off the ſuperabundant water. The earth dug from theſe drains ſhould

be

be thrown out on the lower ſide of them, and upon this new earth the plants ſhould be planted. If land of this latter deſcription be black and peaty, aſh is peculiarly proper for it; and will, if planted on the earth thrown from the drains, make a moſt ſurpriſing progreſs. If it be a ſtiff yellow clay, it is generally more favourable to the growth of oak than of aſh. In ſuch ſoils, oak for *timber*, with a mixture of willow, birch, alder, and Spaniſh cheſnut, for *underwood*, will perhaps be the moſt proper. All theſe kinds ſhould ſtand one round of the underwood; and if ſtill weak, ſhould ſtand two, before thoſe are cut off which are intended for underwood, for the reaſons before given. Birch plants are indeed an exception to this rule; they ſhould always be cut off the *firſt* round of the underwood, for if they are large when cut off, the ſtocks frequently decay and die. In all mixtures of kinds of wood for coppices, thoſe ſorts ſhould be uſed which are not unfriendly to each other, and which will come round fit to be cut together at the ſame periods; and ſuch kinds ſhould be allowed to ſtand for timber, and that at ſuch diſtances as to injure the underwood as little as poſſible. The plants for filling up old decayed woods, ſhould be the *ſtrongeſt* and *beſt* of their kinds. Thoſe which are weak at firſt will be drawn up by the ſurrounding underwood, and become from their increaſed height ſtill weaker. At the next cut-

ting

ting of the underwood, they will be blown down; or, if cut off, the ſhoots will be too weak to grow up with the other underwood. Oak, aſh, and Spaniſh cheſnut, ſhould be kept in a nurſery for this purpoſe; alder and birch plants grow plentifully, *ſpontaneouſly* in ſome countries, and may be taken up for uſe; if none ſuch are to be obtained, they may be raiſed from ſeed ſown on a moderate hot-bed in the open air. Alder is ſometimes propagated by taking up old roots, and dividing them into ſeveral parts; and hazel may be propagated the ſame way. Willow is generally planted in cuttings; but a much better way, where there are any old willow ſtocks, is to plaſh down the ſhoots to fill up the vacant places round ſuch old ſtocks. The wild cherry, which will grow on almoſt any ſoil, and is eaſily propagated, makes an exceeding good underwood, though as yet it is but ſeldom uſed for that purpoſe.

Making of new Coppices.—So much having been ſaid reſpecting the filling up of old coppices, which is equally applicable to the method of planting new ones, there will be the leſs occaſion of ſaying much more on the laſt-mentioned ſubject; but in chooſing ſpots for making ſuch coppices, care ſhould be taken to ſelect ſuch ſoils and ſituations as are proper for the growth of thoſe kinds of wood intended to be planted; to *drain them* well if wet, and particularly *to fence them well* from cattle; and

if

if they are covered with buſhes and briars, to let thoſe remain for ſhelter for the young wood; and if there happen to be a moderate quantity of *young* oak and aſh trees on the ſpot, to let them ſtand by all means, always keeping in mind *how neceſſary ſhelter is, for the growth of wood of all kinds and ſorts.* But in newly planted woods where all the plants are of *the ſame age*, there is not the ſame reaſon for letting them ſtand before they are ſtooled off for underwood, as before directed for young trees planted to fill up old woods. Thoſe which are intended for underwood may, in ſuch newly planted woods, be cut off when planted, or at any age from 8 to 14 years without injury: indeed, young woods ſhould not ſtand too long previous to the firſt cutting.

Proper Age for cutting Underwood.—The periods of cutting underwood muſt be regulated by the luxuriance of its growth, and by the demand of the country, and the uſes to which the wood is to be applied when cut; but, *in general terms*, the common rule of trade will hold good here, viz. "that "*ſmall gains and quick returns make the dealer rich*, "*but long credit ruins him.*" In the article of underwood, not only the intereſt of money, but the loſs of the ſucceeding growth, tell againſt the value of ſtanding wood after it is fit to cut, and make it doubly the advantage of the owner to cut his underwood as early as it is ſaleable. As ſoon, therefore,

therefore, as *any* kind of wood is fit for the uſes of the country, it ſhould *then* be cut; unleſs it can be made appear, that it will pay compound intereſt for ſtanding longer, or, in other words, will pay not only the ſimple intereſt of the *firſt* value, but alſo the loſs of ſo many years growth of the wood, as ſo far advanced towards another crop.

Wood merely for fuel can ſcarcely be cut too young. Hazel is uſually fit for hurdles and dead hedges, from nine to twelve years old; aſh for ſheep-cribs, at the ſame age; and aſh and other woods, for hop-poles, from 11 to 14 years old; while aſh for carpenters and other large uſes; alder, birch, and willow, for rafters, turner's uſes, pattens, clogs, coal-pit uſes, &c. muſt ſtand from 16 to 20 years old, before the poles are large enough for their reſpective purpoſes.

It therefore behoves every owner of woods of the latter deſcription, unleſs he is public-ſpirited enough to give up his own profit to the good of the public, to conſider well, before he ſuffers his wood to ſtand to the age of 16, 18, or 20 years, whether the value of ſuch wood when cut younger, and ſold for *other* purpoſes, added to the intereſt thereof up to the uſual period of cutting, and the gain by the growth between thoſe two periods, will *not more than equal* the value the wood will be of, if ſuffered to ſtand ſo long; and if ſo, whether he ought not to cut his wood at ſhorter periods.

He

He will have this additional ſatisfaction, that, by more frequent cuttings, his woods will be the leſs liable to decay, by the ſtrong ſhoots ſmothering the weak ones, as is before explained, and will have an opportunity of letting up more ſaplings for timber than he could otherwiſe do.

Time of cutting Woods.—There are many opinions reſpecting the moſt proper time of the year for cutting underwood, but there is one rule which, on the *ſeller*'s part, is without exception, viz. that the older the wood is, the later in the ſpring it ſhould be cut. When *old wood* is cut early in the winter, and a hard winter follows, the damage done to the ſtocks is very great;—young flouriſhing wood will bear cutting at any time. But on the part of the *buyer* it is allowed that all woods are more durable, when cut in the moſt ſtagnant ſtate of the ſap; and in all uſes where bending is required, ſuch as hurdles, hoops, and even dead hedges, the wood cannot be cut too early in the winter, being, if cut when the *ſap* is riſing, *brittle*, and unfit for thoſe purpoſes. Oak underwood will (at the preſent price of bark) pay well for ſtanding till the ſap is up for barking it, and it ſeldom happens that the ſtocks are injured by cutting it ſo late in the year.

Manner of Diſpoſal of Woods.—The beſt way of diſpoſing of underwood, to anſwer the purpoſes of the

the ſeller, is (in the opinion of the writer of this) to cut it *at the ſeller's expence before it is ſold*; to lay it out in ranges or drifts, according to the cuſtom of the country; to value it in that ſtate, and ſell it in ſuch ſized lots as the number of buyers will warrant; (always keeping up a ſufficient number to make a competition) and particularly to oblige the buyers to clear the whole out of the wood by the *24th day of June, new ſtile*, and never to ſuffer them to bring their horſes into the woods (after any new ſhoots are ſhot out) without muzzling them, or at leaſt tying up their heads.

Timber growing in Woods.—In every wood where timber *will grow*, it ſhould by all means be encouraged, and if it does not come up ſpontaneouſly, ſhould be planted. A proper quantity in woods is ſo far from hurting the underwood, that it is both *neceſſary* and *uſeful*, to ſhelter the underwood and draw it to a proper height; but that quantity muſt always be regulated, ſo as to do as little damage to the underwood as poſſible. Oak and aſh timber, and in proper ſoils Spaniſh cheſnut, are proper for woods. Beech ſhould never be ſuffered. It is a moſt unneighbourly tree, and ſhould not grow with any ſort but its own—nothing can live under it.

When the woods are cut, it is common and proper to cut ſuch timber *as begins to do damage, by its dropping, to the underwood below.* This is the

proper

proper criterion by which timber in woods ought to be cut, if it be the *wiſh* of the owner, as it is *his intereſt*, to keep up that proper proportion of timber and underwood, by which each ſhall receive benefit from the other, and the land produce the greateſt profit, of which, in a ſtate of wood-land, it is capable.

State *of* Woods *in the* Western Counties.

Hants.

Of all the Weſtern counties, *Hampſhire* has undoubtedly the pre-eminence, with reſpect to the quantity of wood-land, and the profit ariſing from it.

The *peculiar aptitude of the ſoil* to the growth of wood, and particularly of oak timber; the *number of uſes* for which underwood is there particularly wanted; the *rapid growth* of oak timber in that county, and its vicinity to *the ſea-ports*, where the great demand for oak timber is, and always will be; are the reaſons why it has hitherto had, and why, in all probability, it will always keep that pre-eminence.

Wilts.

The ſouth-eaſt part of Wiltſhire, which adjoins to the county of Hants, viz. part of the New Foreſt, and from thence to Winterſlow, is exceedingly well wooded, and the woods partake much of the properties of thoſe of Hants. The middle parts, or

downs of Wiltſhire is but ſparingly wooded, nor is the ſoil ſo natural for wood as the downs of Hampſhire, but in almoſt all the outſkirts of the county there are valuable and flouriſhing woods, viz. Chute foreſt on the eaſt, Bradon foreſt in the north, Stanton, Farleigh, Weſtbury, and Warminſter woods on the weſt, and Cranbourn chace on the ſouth.

Dorset.

The ſame remark holds good with reſpect to the county of Dorſet, as above made on the county of Wilts, that the downs are *ſparingly wooded*, and the ſoil *not ſo natural for wood* as that of Hants:—in fact, the ſoil of both Wiltſhire and Dorſetſhire downs is *too black*, *too light*, and *too looſe*, for the growth of wood, particularly for oak timber, but the reſt of the county is in general very well wooded, and in many parts the ſoil is very natural to the growth of both underwood and timber.

Somerset.

The county of Somerſet is not famous for oak timber; as the middle parts of Wiltſhire and Dorſetſhire are *too poor* for its production, the middle part of Somerſetſhire is *too rich*. Oak timber never comes to perfection *in any great quantity*, in any countries *where it is not the weed of the ſoil*. Stiff heavy land, if *ever ſo poor*, and indeed if *ever ſo thin*, generally abounds in oak. The *light*, *black*, *looſe*

ſoil of the Wiltſhire hills, and the deep, rich, but *alſo looſe* ſoil, of the moors and marſhes of Somerſetſhire, are equally unfavourable for its *ſpontaneous* production. Oak timber, and wood of almoſt all kinds, will undoubtedly *grow* and *flouriſh* in land of the latter deſcription, *if planted*; but ſo long as worſe land will anſwer the purpoſe *equally well*, or *perhaps better*, it will be thought abſurd to apply land ſo valuable for other uſes, to the ſole purpoſe of growing wood, or at leaſt in any great quantities. The hills of Mendip were formerly covered with wood, but it is now confined to the ſides, on which there are many very valuable and flouriſhing woods, particularly on the north and weſt ſides of it; but few of them abound in oak timber, nor indeed is the ſoil or ſituation perfectly congenial to its growth. On the outſkirts of the county, particularly the antient foreſt of Frome Selwood on the eaſt, and on ſeveral parts of its weſtern boundary, there are ſome good and well-timbered woods.

Devon and Cornwall.

The counties of Cornwall and Devon, and particularly the latter, are peculiarly natural to the growth of oak, but the ſea-breeze from the north channel is ſo very inimical to it, that, unleſs in ſheltered ſituations, it ſeldom comes to perfection, and when the woods (which the owners are apt to let ſtand to a great age on account of the bark) are once

once cut down, it is difficult to get them to grow up again. This is the reaſon why the woods on the north coaſt of Devon and Cornwall appear to be, and really are, in a ſtate of decay. In fact, Cornwall which has long been thin of wood, will in a few years, eſpecially if the high price of oak bark continue, be almoſt deſtitute of it. Many parts of Devonſhire, where the breeze from the ſea, and particularly from the north channel, does not affect them, are well wooded, and the woods well managed and flouriſhing.

Gloucestershire.

But of all the weſtern counties, there is no inſtance of ſo peculiar an aptitude in the ſoil and climate to produce timber and underwood, and of ſo little attention being paid to the production of either, and particularly of timber, as in the county of Glouceſter. There are very few parts of this kingdom which can boaſt of ſo great luxuriance in vegetation as this county. The underwood, on the ſteep and almoſt inacceſſible ſides of the Cotswold hills, frequently produces (wherever the owners take pains to keep the ſheep out of it) a clear average rent *from* 20*s.* *to* 25*s.* *an acre, per annum*; and yet theſe valuable woods are ſuffered to be ruined for want of fences, and daily get worſe. The bad management of the Foreſt of Dean, one of the fineſt nurſeries for timber in the kingdom, has ſo long

been proverbial, that it is to be hoped ſome ſteps will ſoon be taken, to wipe away the ſtigma, and to make the foreſt as valuable as nature intended it ſhould be. There are undoubtedly many parts of the county, in which as great attention is paid to the preſervation of wood, as in other parts of the kingdom; but it cannot be denied, that a want of that attention *in general* is too obvious, in many parts of the county, to eſcape the notice of every traveller who is a judge of the ſubject, and which nothing tends to attract ſo much as the peculiar and almoſt inconceivably rapid growth of ſuch wood as is protected and taken care of.

Upon a *general enquiry* into the ſtate of the woods in the weſtern counties, and from *an actual knowledge* of a great part of them, the writer hereof is of opinion, that the *quantity of wood-land* in thoſe counties is not reduced *in any great degree*; that in many large tracts of woodland, great advantages have *of late years* been derived from exonerating them, by incloſure acts, or other agreements, from the feed of cattle, to which they were before ſubject, and by which they were very much injured; that upon the whole, as much attention, or perhaps more, is paid to the preſervation of woods, than has been in any former period; that from the quantity of woods *newly planted* within the laſt few years, and particularly from that ſpirit of enquiry into *their value* now ſo generally diffuſed throughout this kingdom, which

will

will point out the neceſſity of protecting them when planted, and the mode of management moſt proper and natural for them, according to their ſeveral ſoils and ſituations; there is at preſent no great reaſon to apprehend that any ſuch ſcarcity of underwood or timber can happen, as will make the want thereof alarming; and as to the advance in the price of underwood and timber, *ſo much talked of by all perſons, and ſo much dreaded bym any*;—a moment's conſideration will convince them, that no laws that could be made for the preſervation of woods would ſo effectually contribute thereto, as the idea *that the land ſo applied will pay as well or better than in any other ſtate of cultivation.* And as the value of both arable and paſture land in this kingdom, has been regularly on the increaſe for many years paſt, and is ſtill increaſing, *it is neceſſary that the price of underwood and timber ſhould increaſe in the ſame proportion*; and ſo far from being alarmed at the advance in the price of the productions of woods, we ſhould conſider *that this very advance is the beſt ſecurity we can have for their preſervation.*

Article II.

An Enquiry concerning the ſtate of Timber, &c. now growing in England.

[By Mr. Joseph Wimpey, to the Secretary.]

Sir,

YOUR enquiry reſpecting the ſtate of timber now growing in England, if taken in its fulleſt extent, is, perhaps, one of the moſt important queſtions that was ever propoſed for diſcuſſion, either by your very reſpectable Society, or any other of a ſimilar nature. I am, therefore, not a little ſurprized that more attention has not been paid to a ſubject ſo greatly and univerſally intereſting, not only to the ſafety of the State, but to the uſe and convenience of every claſs of the people.

A writer of the moſt diſtinguiſhed abilities, ſpeaking of the maritime ſtate, makes the following obſervation: "The royal navy of England hath ever "been its greateſt defence and ornament; it is its "antient and natural ſtrength; the floating bulwark "of the iſland; an army, from which, however "ſtrong and powerful, no danger can ever be ap-"prehended to liberty; and accordingly it has been "aſſiduouſly cultivated even from the earlieſt ages."* If the navy of England was of ſuch immenſe importance in thoſe early ages, what eſtimate can be

* Blackſtone's Commentaries, vol. i. 417.

made

made of its importance now, when every ſea-port in Europe is filled with ſhips of war, and veſſels fitted for commerce?

If this repreſentation be juſt, it ſhould ſeem, that the very exiſtence of Great-Britain as a ſovereign independent ſtate, and its foreign commerce, which furniſhes the riches, and is the pride and glory, and at the ſame time the admiration and envy of the world, depend almoſt entirely on the ſtrength and good condition of the navy. Now, as Engliſh oak is univerſally allowed to be the beſt timber in the world for ſhip-building, as it is both ſtronger and beyond all compariſon more durable than any kind of timber yet known; it is not to be wondered at, that every one, who has a grain of patriotiſm in his conſtitution, ſhould be anxious to learn with certainty, whether a material ſo neceſſary not only to our proſperity, but to our exiſtence as an independent ſovereign nation, is in a flouriſhing ſtate, and promiſes a ſupply which is abundantly ſufficient to anſwer every demand which in its utmoſt exigence it can poſſibly require.

It is the general opinion, that not only oak timber, but wood of all ſorts *is*, and long *has* been faſt diminiſhing. There are indeed ſome (a very few, I believe) who treat the notion as chimerical and unfounded; but if we reflect on the amazing increaſe of the navy, comprehending ſhips of war; thoſe employed by the Eaſt-India Company, in the Whale, Newfoundland,

Newfoundland, and other fiſheries, and the vaſt increaſe of thoſe for commerce; the wonder would rather be, where or how a quantity of oak timber ſufficient to anſwer demands ſo immenſe ſhould be found: add to all theſe, the conſtant demand there is for domeſtic purpoſes, and the quantity appears to be truly aſtoniſhing. It is true, however, that for domeſtic uſe, fir timber has greatly ſupplied the place of oak; and as it works much eaſier, and comes cheaper for inſide work, it is moſtly preferred: but for timber conſtantly expoſed to the viciſſitudes of weather, nothing yet diſcovered is by any means equal to oak, or any way comparable to it, either for ſtrength or duration, or in the end for cheapneſs. The price of deal timber hath conſiderably advanced, and will probably continue to do ſo; but ſuppoſing it ſhould not, it would be neither politic or economical, to depend upon the uncertainty of foreign ſupplies for an article ſo neceſſary, which might be ſupplied with *certainty* at home, with ſafety to the public, and much to the intereſt of individuals.

Whether oak timber, and timber and wood in general, has diminiſhed, and is annually dimiſhing, is a queſtion which cannot be decided by mere opinion; for opinion is unworthy of regard, unleſs it be founded on experience and obſervation. Recourſe muſt therefore be had to facts collected from general obſervation. Every man, be the place of his

his reſidence wherever it may, either knows of himſelf, whether he pays more for timber now than he did 20, 30, or 40 years ago, and the ſame for wood for fuel. If he does not [illegible] this knowledge of himſelf, any of his neighbours can give him ſatisfactory information; but it muſt be obſerved, that the Royal Dock-yards are not the proper places for enquiry; for there the prices riſe and fall, not in proportion to the increaſe or diminution of the general ſtock in the nation, but to its circumſtances in regard to peace or war; thus, two or three years ſince, it is ſaid to have been 30 per cent. lower (the nation being then in profound peace and no war apprehended) than it had been during the laſt and former wars, or than it is or will be during the continuance of the preſent war. But the caſe is quite different in timber for domeſtic uſes, not only as timber of the greateſt value for maritime purpoſes is of the leaſt for domeſtic uſe, and *vice verſa;* but as for that purpoſe, a diminution in quantity, and an increaſed demand, muſt infallibly advance the price, as it does in every article of commerce without even a ſingle exception. I will explain and confirm this by facts within my own knowledge.

It is now nearly, or about half a century ſince I began to have ſome conſiderable concern in building. I then reſided in Berkſhire, on the borders of Hampſhire; I bought timber at that time of prime ſize and quality, ſawed out in ſcantlings to the carpenter's

penter's hand, for fourteen-pence a foot, delivered where it was to be uſed; which, I am informed and believe, could not be bought at the ſame place, now, little, if any thing under double the price; and I well remember the price of wood for fuel was then upon the advance. Again, about 20 years ago, we bought about 2000 feet of oak timber, about two miles from the place where I now write, for ſix-pence a foot only; now timber of the ſame quality could not be bought any where in this neighbour-hood for conſiderably more than double the money. At the ſame time I ſold bark near this place, for twenty-pence the hundred weight, and carried it ſixteen miles; this ſeaſon it has been ſold for five ſhillings a hundred, ſome for conſiderably more, and carried only eight miles. Wood for fuel is alſo advanced here about a third in value; what ſold for ten ſhillings a few years ago, now ſells for fifteen.

Since writing the above, I have have had ſome converſation with a dealer in oak bark. He told me a coppice of oak had been lately ſold in this neighbourhood for twenty-eight pounds, ten ſhil-lings an acre, which the laſt time it was cut at the ſame age, was ſold only for five guineas. The ad-vance is indeed aſtoniſhing, but I have no reaſon to doubt the truth of it. The coppices in this part of the country are chiefly of oak, which often ſtand twenty years and upwards, then they bark the poles,

and

and ſell the wood to the charcoal-makers. It has been obſerved by one of your members, that oak timber has been lately ſold in this country as low as ſixpence and fourpence a foot; if ſo, it muſt be owing to ſome local circumſtances of a very ſingular nature, for no where in this neighbourhood can any fuel of any ſoil be bought ſo cheap as oak timber would be at that price.

A few years ſince, a large quantity of timber was cut near Torrington, in this county, and ſent to Plymouth; and at this time there is a quantity at or near the ſame place for the ſame market; now it ſhould ſeem, nothing ſhort of neceſſity, can account for the heavy expence that muſt attend the carriage from Torrington to Morwellham quay, near Taviſtock, which is full thirty miles of the moſt hilly and very worſt road in the kingdom. There it is ſhipped and carried to Plymouth, which is the neareſt way it can go. Does not this clearly prove that timber muſt indeed be ſcarce, when it is found neceſſary to be at ſuch an exceedingly heavy expence to procure it?

This is a ſubject which at times has occupied my thoughts for many years. The facts above ſtated on my own knowledge, and the general information obtained from others of whom I have enquired render it impoſſible for me to entertain the leaſt doubt, that the timber growing in England has been annually decreaſing many years: I would therefore

therefore earneſtly intreat the LAND-OWNER to examine the truth of this buſineſs very carefully, as his own private intereſt is ſo materially connected with the ſecurity, the ſafety, and the good of the public in general.

But though the great hazard incurred by the neglect of cultivating oak timber is unqueſtionably great, it is by no means the whole of what is to be apprehended from it, nor indeed the worſt part of it. Food and raiment are conſidered as articles of the firſt importance to the ſubſiſtence of man; but I believe it would be found upon a fair examination, that the value of the firſt, which is the chief, is advanced a hundred fold by means of fire. What proportion of the people now living could be ſubſiſted by the whole produce of the earth in its raw unprepared condition? Without fire we could neither bake nor brew, roaſt, boil, or broil; and how long could men ſubſiſt on the roots and herbs of the field and the garden as taken from the earth? Theſe are ſerious queſtions, which force themſelves to the obſervation in many parts of England; not merely through apprehenſion or anticipation, but by preſent hardſhips now really exiſting and ſeverely felt, and loudly complained of. The ſcarcity of fuel in ſome parts is ſo very great, that the poor at the approach of winter are in a ſtate of deſpondency; I have often heard them expreſs more concern and anxiety on that account, than I ever did at the price

of

of corn when at the higheſt I ever knew it. The fact is, in ſome parts fuel is not to be got for money; even in Hampſhire and Berkſhire, counties formerly reſpectable for the growth of wood, it is now become ſcarce and dear, and has been long comparatively ſo. In the latter county, if happily for the inhabitants, immenſe quantities of peat had not ſupplied their wants during the whole of the preſent century, their neceſſities would have been great indeed; but it is now a melancholy truth that that ſource of ſupply is nearly exhauſted. Indeed the gentry, and even the middling claſs of the people there, have long burnt Newcaſtle coals, which are brought in barges from London to Reading and Newbury, and afterwards carried by land through the adjacent country twenty or thirty miles about. Newcaſtle coals are likewiſe burnt in many parts of Hampſhire, even near the New Foreſt, where it is ſaid, there are obvious reaſons for wood being cheaper than in moſt places; yet under all the diſadvantages of ſo long a carriage by land and water, coals are found to be much cheaper fuel than wood.

That fuel ſhould become in moſt places ſo ſcarce and dear, is not difficult to account for. Till lately the commons, and indeed many incloſures, were very well covered with furze ſufficient to ſupply, not only the wants of the labourers and poor cottagers with as much fuel as they wanted, but the farmers and others with ſufficient for brewing, waſhing,

waſhing, baking, the uſe of the dairy, &c. Of late years, brick and lime-kilns have been much increaſed, and a vaſt conſumption of furze has been occaſioned thereby. Great numbers of incloſures have been alſo cleared and converted to the growth of corn: add to theſe the great number of hedges which have been grubbed up to enlarge fields and extend proſpects,—a novel inſtance of ſacrificing convenience and emolument to faſhion! and can it be a wonder that fuel is grown ſcarce?

Were I the owner of a million of acres, I would not ſuffer one to lie unoccupied. What would not bear corn or graſs, I would plant with wood. There are very few ſoils, if any, that would not bear wood of ſome kind or other; and the moſt ordinary would be very acceptable, where no better is to be got. There are many, many thouſand acres in this county, the annual produce of which does not amount to ſixpence an acre per annum, which if well planted even with furze would be worth five ſhillings. The general opinion is, that ſuch land is too ſterile and poor to bear any thing; but I am thoroughly convinced this is a great miſtake. About eighteen years ago, ſome thouſands of firs of all the different kinds, were planted in ſome of the worſt ſoils I have ſeen in this county; for a few years at firſt, they cut an unpromiſing appearance, but now they are as fine in all reſpects as I ever ſaw; in general they run from eight to ten, ſome to twelve inches

inches diameter, and from twenty to twenty-five ſeet high, and promiſe to make as fine timber of the kind as ever was ſeen.

In ſhort, in whatever point of view we place this object, it is certainly of the moſt intereſting kind to the good of the country at large. It provides timber for the navy, and ſecures the ſafety and independent ſovereignty of the ſtate, as well as for buildings of all kinds for domeſtic purpoſes; it provides fuel for the uſe of the poor, and the middle claſſes of the people, whoſe very exiſtence will ſoon, in many parts of the country, abſolutely depend upon it; and laſtly, it will add to the intereſt of the land-owner, far beyond what has been generally conceived; I would, therefore, recommend it moſt earneſtly, to their ſerious conſideration, as a matter of the greateſt inportance to the ſafety and proſperity of this country.

I ſhould now proceed to offer ſome conſiderations for the moſt ſucceſsful and advantageous means of improving thoſe lands, which in their preſent ſtate are almoſt below eſtimation, conſiſtently with promoting the growth of timber, &c. as above recommended; but as that would extend this paper, perhaps already too long, to a very inconvenient length, I muſt requeſt leave to ſubmit it to the conſideration of the Society in ſome future paper.

I am, Sir, &c.

JOSEPH WIMPEY.

Bratton-Clovelly, near Okehampton, Devon, 1794.

Article III.

Of the great improvement which may be made from a largely extended Cultivation of Timber and other Wood, with the means of performing the ſame with the greateſt ſucceſs and advantage.

[In a Letter by the ſame, to the Secretary.]

Sir,

IN a former paper on this ſubject, which I requeſted the favour of you to offer to the conſideration of your very reſpectable Society, ſeveral facts were adduced that had fallen within my own knowledge, which clearly proved, that the price of timber for domeſtic purpoſes, and of wood for fuel, was greatly advanced within the laſt fifty years; and therefore, that an extenſive cultivation was not only expedient, but even neceſſary, and was become a very important object to the land-owner, as well as the public at large; and therefore I took the liberty of recommending it to their moſt attentive conſideration.

Since writing the paper above referred to, it is ſaid, the diſtreſs of the poor in ſome parts of Scotland for want of fuel hath been ſo ſeverely felt, that compaſſion has thought it neceſſary to bring a bill into parliament for affording them ſome relief by taking off the duty on coals imported into thoſe parts. The deſign is undoubtedly merciful, and

it

it will be well if the effect ſhould prove as great as the intention is gracious; and it would certainly be happy for the poor in many, perhaps in moſt parts of England, if a mode ſimilar in the hoped-for effect could be ſpeedily adopted for their relief; for, it is very certain, the ſcarcity and high price of fuel is in moſt places a ſource of wretchedneſs almoſt equal to the want of bread.

A mind duly impreſſed with theſe ſentiments—the ſtrange neglect of cultivating wood in a country where many, many thouſands of acres, which in their preſent condition afford no profit worthy of notice either to the owner or occupier, therefore, moſt aſſuredly, none to the public—cannot help being filled with aſtoniſhment and diſguſt. In this county alone the quantity of land of this deſcription is immenſe. The ſum total of ſuch land in Great-Britain muſt amount to ſome millions of acres. But it has been objected, " that planting wood has been ſo far from being conſidered as an improvement, that much hath been grubbed up, the ground cleared, and converted into arable or paſture." The practice was prudent, if the land was proper for either, and muſt be attended with great advantage; but that is no reaſon why land ſhould not be planted with wood, when, from its ſituation and preſent condition, it is known to be good for little or nothing elſe; and perhaps it is more than probable, that thoſe very lands ſo cleared, have been

ameliorated and improved by this wood, which is now eradicated and deſtroyed; for certain it is, that land, which has been long ſo occupied, is greatly improved thereby, and rendered ſufficiently fertile to produce corn or graſs, if its ſituation be not unfavourable to ſuch productions.

That every kind of vegetable, from the loftieſt oak to the minuteſt plant, thrives better in ſome ſoils than in others, is a truth which has eſcaped the obſervation of few; and generally the better the ſoil, the more luxuriant the growth; but fortunately, a ſoil is rarely to be met with which cannot ſupply nouriſhment ſufficient for the profitable growth of wood of ſome ſort. It is not always, or indeed often, that plantations of timber and other wood do not proſper through poverty of ſoil, as has been commonly imagined; but generally from the ſituation being too much expoſed to the unfriendly chilling quality of ſtrong winds, which are injurious, if not deſtructive to vegetation, in every kind of ſubject, and nothing ſuffers more than timber and wood of all kinds, through want of protection and the kindly warmth it affords, as is very evident from numberleſs inſtances of ſtrong healthy trees ſuddenly falling into decay, upon imprudently cutting away the wood growing about them, and too ſuddenly expoſing them to the rigour of a cold and inclement ſituation.

Advantageous, however, as promoting and extending the planting of timber and wood, in every point of view, may appear; it is not to be underſtood that I mean the immenſe quantity of land abovementioned ſhould be planted; perhaps one acre in twenty, or at moſt one in fifteen, would be fully adequate to the intended improvement, ſo that the planting thoſe lands, which in their preſent ſtate are of very little value, would be ſo far from diminiſhing the quantity of paſture and arable land, that it would add immenſely to it, as I ſhall endeavour to demonſtrate.

The ſucceſs of every practice affords the cleareſt and moſt ſatisfactory evidence of the truth and juſtneſs of its principles. It is now about eighteen or nineteen years ſince we began to plant on the ſpot I now write on: ſuch bits and pieces of land were choſen as afforded no kind of profit whatever. Some a quarter of an acre, ſome a half, ſome ſeveral, but none of any value. As it was meant by way of experiment, every ſpecies of pines and firs which are commonly to be met with were planted; as likewiſe every kind of foreſt tree that is uſually planted in England. The pines and firs run now in general from 20 to 30 feet high, and their circumference in proportion. I meaſured one of the largeſt pinaſters a few days ſince, and at two feet above the ground, the circumference was fifty inches, and a ſpruce fir at the ſame height, was thirty inches, and

many ſilver, Weymouth, and Scotch, conſiderably more. The foreſt trees are equally proſperous. A cheſnut, planted ſome years ſince the above, is between 20 and 30 feet high, and 25 inches in circumference a yard above the ground; and moſt of the kinds which were planted have thriven equally well, a few of the ſofter woods only excepted. The poplars, tree willows, and abeles, do not ſucceed here; they are aſpiring trees, and generally ſhoot up to a great height in a favourable ſituation; but it ſeems they cannot bear the rigour of the cold winds in ſuch an elevation, nor do they thrive when protected by hardier trees which ſhade and overtop them; for it happens to them as to moſt other plants, when the leading ſhoot is ſo much injured as to ſtop its vegetation, the whole tree ſoon falls into decay and ſeldom thrives after.

Wherever the plantation is five, ſix, or more trees deep, the whole has ſucceeded to admiration; but when they have been planted ſingle, very few indeed have ſucceeded. It is true many of them are alive, but never likely to make timber, being ſtinted in their growth, decrepid and decaying. As the ſoil, ſituation, and expoſure, is the ſame for thoſe as the other, the ſole cauſe ſeems to be the want of that warmth and protection which the other receive from being planted in large numbers. The foreſt trees ſucceed no better than the firs and pines if planted ſingle, the beech, hornbeam, and

ſycamore

ſycamore excepted; theſe, eſpecially the beech, ſeem to thrive in every ſoil and ſituation, in defiance of all wind and weather. Not ſo the oak and aſh; the firſt particularly ſuffers as much for want of warmth and protection, as any tree which is a native of this iſland.

From the above account of the ſucceſs of theſe plantations it evidently appears, that planting ſuch ſoils with wood would be attended with the greateſt advantages; not only as affording a large profit ariſing out of the thing itſelf, independent of every collateral conſideration; but as the certain means of improving very large tracts of land, which in their preſent condition are of very little value, and by no means capable of improvement, but by being forced in and planted with wood. In this country are vaſt tracts of land called moors: they are not waſte nor commons, but appropriated, though not incloſed; but the owners have a right to incloſe them if they chooſe it. The preſent value of them is ſo inconſiderable, that they are not thought worth any expence being beſtowed upon them. The only uſe that is made of them, is to turn out a few ſheep upon them, where they run four or perhaps five months at moſt in the year only. The ſituation is ſo exceedingly expoſed, cold and bleak, that it bears no graſs before the month of June, nor after October, but if it did, no cattle could ſubſiſt upon it without being well ſheltered.

Neceſſity is ſaid to be the mother of invention: the fences in this country, eſpecially in the parts moſt expoſed, are generally deep double ditches, with a broad high bank between them: theſe banks are planted on the top and both ſides with wood, moſtly oak, for the ſake of the bark, though it makes but an indifferent fence; but ſuch is generally the practice of the country. The bank being deep in earth taken from the ditches, the wood in general grows luxuriantly: this kind of fencing is attended with many advantages. The high banks, thus covered with wood, afford protection for the cattle in the winter from the piercing cold ſtorms, and equally from the melting heat and inſufferable torment of the flies in ſummer; thus protected, the graſs is forwarder by ſix weeks or two months than when it is quite expoſed, which is a great advantage, and if the land be wet and ſwampy, which is frequently the caſe, the ditches ſerve as drains to carry off the ſuperfluous water. At a proper age the oak is barked for ſale, and the wood ſold for fuel as far as the farmer's convenience will permit.

Unfortunately great tracts of land in this county are deſtitute of this improvement, which by ſuch means might be made productive of both corn and graſs, to the very great profit of the land-owner, and at the ſame time a moſt welcome increaſe of wood for fuel, for want of which the poor inhabitants are exceedingly diſtreſſed. To ſhew of how

little

little value thoſe extenſive tracts of land, called moors, in this county are, I will give you an account of a very ſmall part of one in this neighbourhood.

About two miles from this place is a ſmall part of a moor, which contains about 400 acres; it belongs to three perſons, two of them have each three parts in eight, the other the remaining two eighths. One of the proprietors lets his three-eighths for two guineas a year, the other two for not quite ſo much in proportion; ſo that the whole rent amounts to only about threepence halfpenny an acre a year. In this condition I apprehend it has been for ages paſt, probably it never was of greater value, and unleſs the ſpirit of enterprize and improvement ſhould increaſe, it is very certain it never will.

Some time ſince I had it in contemplation to purchaſe it and attempt its improvement, but upon enquiry, was informed one of the owners could not alienate, ſo my deſign was fruſtrated; however, as I am perſuaded the method I purpoſed to purſue would have proved ſucceſsful, I will venture to propoſe it to the conſideration of your very reſpectable ſociety.

The plot of ground in queſtion is quite level, though it lies very high, and expoſed to every wind that blows, come from whatever quarter of the heavens it may, without a tree, hedge, or buſh, except a few furze buſhes, to afford it the leaſt protection. The ſoil is very dry, and for a few months in ſum-

mer is covered with ſhort fine graſs, fit only for the walk of a few ſheep. Now the method of improvement I propoſe is as follows:

Firſt; To dig a broad ditch, and raiſe a high bank all round it, by way of fencing it off from the extenſive moors, which are contiguous to it and ſurround it on every ſide. The next thing I intended was, to meaſure out from the inner brink of the ditch, three (or perhaps four would be ſtill better) perch or pole on every ſide, to form a margin which ſhould be thoroughly ploughed, pulverized, and made ready for planting in the ſpring. The exterior line ſhould be ſown with white-thorn berries in a double row about a foot aſunder, row from row. At four feet diſtance from the ſame, a ſhallow furrow ſhould be drawn, and ſo on at that diſtance from one furrow to another the whole breadth of the margin. As we advance from the outſide, every row of plants will be more and more protected; therefore, the hardieſt trees ſhould be planted outermoſt, which may be in the order following: firſt, beech, horn-beam, or ſycamore; the next may be aſh; the third row, cheſnut; the fourth, oak; the fifth, cherry; the ſixth, pines, firs, or larch; then cheſnut again, or a repetition of any of the former, as the planter may judge proper. This would ſerve as a nurſery, and provide plants ſufficient to plant all the interior fences. As the moor is about 400 acres, and almoſt ſquare, we will ſuppoſe it to be

260 poles long, and 250 broad, and then it will meaſure 406 acres.

Suppoſing that to be the length and breadth of the plot, and we take three poles for the breadth of the plantation on each ſide, then the meaſure of the four ſides will be 19 acres, (fractions omitted:) if from 406, the ſuppoſed amount of the moor, we take 19 for the plantation above deſcribed, there will then remain 387 acres, which it is propoſed to divide into 36 fields or cloſes; each field will then contain about ten acres and three quarters, a ſize ſufficiently large to anſwer every economical purpoſe. For each interior fence it is propoſed to allow a pole of ground, which will be ſufficient for a double ditch, if thought neceſſary, and a broad high bank. Theſe banks will require three lines of ſets to plant them, one on each ſide about two feet from the bottom of the ditch, and one on the top exactly in the middle. It will alſo conveniently admit of two rows of trees for timber, to be planted about two feet high in the bank on each ſide, at the diſtance of a pole from each other: thoſe on one ſide to be planted oppoſite to the intervals on the other. The moor divided thus into 36 fields, requires ten hedges, and allowing a pole to the breadth of each, including the ditches, will require ſix acres; ſo that the whole to be planted will amount to 25 acres, which is one of wood, to fifteen of arable and paſture.

Now,

Now, if fencing and planting thoſe extenſive moors will afford warmth and protection ſufficient to render them productive of herbage and grain, of which I can have no doubt, as the ſoil is as good as many of the incloſures now in tillage; alſo that the plantations will ſucceed and prove effectual, as we have planted many acres of the moſt worthleſs ſoil upon this eſtate, which greatly exceed all expectation, and afford the cleareſt demonſtration of the certainty of the ſucceſs, it undeniably follows that ſuch improvement muſt be inconceivably great. The quantity of fuel and timber that ſuch a plantation would afford, would of itſelf be a vaſt improvement, abſtracted from every conſideration of the vaſt advantages which would accrue to the fields ſo incloſed, which may reaſonably be eſtimated in the proportion of from 20 to 30 or more for one.

An extent of ground of 25 acres planted as above, when properly thinned to ſtand for timber, would ſupport 10,000 trees; theſe in 30 or 40 years, let them be of whatever kinds you pleaſe, would amount to a very large ſum, eſpecially if we take into the account the poles and fuel that muſt be cut out to reduce the timber to its proper diſtance; but the great and important buſineſs is the improvement of the fields which thoſe plantations are meant to protect and defend: an improvement not to be obtained by any other means whatever, which is in the power of man to purſue. It is abſolutely the *ſine qua non*

of

of improvement in thoſe cold, bleak, expoſed countries, which without it muſt remain, from generation to generation for 1000 years to come, as probably it has done for ſome thouſands paſt.

The moſt formidable difficulty which occurs in this ſcheme, is the time and expence required to eſtabliſh the outward fence. If the outer line be ſown or planted with white or black thorn, with holly, crab, beech, &c. it muſt be fenced for ſeveral years, to defend it from the bite of cattle, which requires more patience and expence than is uſually allowed, though abſolutely neceſſary; but there is an eaſy method of making an outward fence, which in two, or at moſt three years, will be very ſecure, without further expence and with little trouble.

The ditches and banks being prepared as above, I would adviſe the planting of a *withy edge on the brink

* WITHY. By this term, I much doubt if I ſhall be generally underſtood, it being ſeldom, I believe, to be met with in books, though very common among workmen and dealers in wood. It is a term of a very comprehenſive meaning, as it includes many different kinds of plants, as ſallows, willows, oſiers, and many others, ſcarcely known by any but baſket-makers, for whoſe uſe they are moſtly planted; and each of theſe conſiſt of a great variety of ſpecies. Mr. Miller enumerates, I think, only 14; but there are, I believe, near 20 of the oſier, as many of the willow, and a great variety of each of the other kinds. The ſpecies here meant to be recommended, is of the ſallow tribe, and deſcribed by Miller under the title Sallow No. 13 and 14. One of them is by ſome called the mountain ſallow, as it will grow on dry banks where moſt other ſorts cannot live. It is of a cloſe firm texture, long lived,

brink of the bank, which ſhould be done in manner following: a ſufficient number of ſtrong withy ſtakes are to be prepared, by cutting them from three and a half to four feet long, and from one and a half to three inches diameter; being cut ſharp at the lower end, they are to be thruſt or driven into the ground about 15 or 16 inches, or till they are firm, at the diſtance of about 14 or 15 inches one from another in a line; then an equal number of ſhorter ſets muſt be prepared; theſe may be 15 or 16 inches long, and from three quarters of an inch to an inch and half diameter, and muſt be thruſt into the ground about 10 inches deep, leaving about ſix out, to be planted one in the middle of each two of the former, then they will ſtand in alternate ſucceſſion. The tall ſtrong ſtakes muſt be faſtened together by a whale or kind of chain, ſuch as the hedgers weave on the tops of the dead hedges; they are made of three hurdle rods of the ſame wood. If ſtakes and ſets are cut any time in January or February, and planted in open weather in a few days after they are cut, very few of them will fail of growing, and in two years time

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lived, and very durable in ſtakes, hurdles, poles, &c. more ſo than any wood that is proper to be uſed for that purpoſe. If cut at ſix or ſeven years growth, it is very uſeful for chair-makers, rakes, forks, prong-ſtaves, and hoops; and laſtly, it is excellent for fuel and charcoal. A hedge thus planted, would be very uſeful for other purpoſes, as well as for fencing the ground.

the

the ſhoots from the ſtakes and ſets will be long enough to be woven flakewiſe; thoſe from the ſhort ſets into the bottom and middle of the hedge, and thoſe from the ſtakes into the upper part and top of the ſame. At that age they will be flexible enough to be wrought in without cutting, which is practiſed in older and larger ſhoots to the great damage of the hedge. A fence thus managed will be very ſecure, and ſtand an age with little expence and trouble.

To conclude: it ſeems as plain as demonſtration can make any thing, that wherever ſuch extenſive tracts of worthleſs land are to be met with, ſituated and ſo circumſtanced as above, by being incloſed and planted as here recommended, they may be made to produce fuel ſufficient to relieve, in a great meaſure, the diſtreſs the labouring poor daily feel for want of it; to ſupply a large increaſe of timber for naval and domeſtick purpoſes; to increaſe by its warmth and protection the corn and herbage of the fields, ſo incloſed, to the very great advantage of the land-owner and the publick. In ſhort, there is not an individual, from the princely owner of thouſands and tens of thouſands of acres, to the meaneſt cottager, who would not be greatly benefited by it; therefore, I hope, I ſhall be forgiven in earneſtly recommending it to the attention and incouragement of ALL who are bleſt with the means of promoting ſo great and extenſive a good.

I con-

I conclude, with ardent wiſhes for the perpetual ſucceſs of your ſociety; and am, ſir,

Your moſt reſpectful

humble ſervant,

JOSEPH WIMPEY.

Bratton-Clovelly, near Okehampton, Devon.

Article IV.

On the Preſent State of Naval Timber.

TO THE SECRETARY.

Sir,

As an ingenious correſpondent of your's differs widely in opinion with me, reſpecting the preſent ſtate of naval timber in the kingdom, and treats the apprehended ſcarcity of it as a chimera only; pardon me, if I take the liberty of diving deeper into the ſubject, in proof of the poſitions by me advanced in the ſixth volume of the Society's Memoirs.

In late circuits through countries well known before, I could not but obſerve that the woods had loſt their dignity; acres, which within my memory were replete with noble oaks, have now ſcarce a naval ſtick to ſhew. Woods, where the foreſt lads have chaced the bounding ſquirrel from tree to tree

for

for a mile or more in length, now lie void of timber, deſolate and waſte. Witneſſes from Hampſhire, Kent, Surry, Suſſex, Hereford, can vouch ſuch aſſertions to be true, and not confined to narrow diſtricts only; but that the general face of the woodland parts of their reſpective counties hath of late years loſt its moſt ſtriking features, and the woods themſelves their chiefeſt glories; both their branchy and their towering oaks.

Argument deſigned to controvert facts muſt either bewilder the ſenſes by the dazzling blaze of rhetoric, or be eſtabliſhed on a firmer baſis than the paradox in commerce, on which the reaſoning of your correſpondent reſts.

On his obſervation, "that the dock-yard prices "have virtually ſunk of late, by increaſing the me-"tings of timbers they take in;"* permit me to remark, that in taking large pieces at the old price, they favour the merchant by winking at an encroached profit, which has been gradually creeping on, to upwards of ſixteen per cent. That in rejecting the ſmall, they do but juſtice to the crown; for, from an eſtabliſhed rule of near a century ſtanding, no ſticks under ſixty feet metings were admiſſible,

* "That is, they now reject timber under a certain ſize, which till "of late they were obliged to take, to induce the dealers to bring them "the large pieces they wanted. They now take the large pieces at "the old price, and reject the ſmall."

Bath Society's Memoirs, vol. vi. p. 179.

knees,

knees, crooks, and compaſs pieces, only excepted. At that time the round ſtick of a ton, hard hewn, extended to a load, viz. forty feet of round timber (by the accuſtomed meaſurement of the day) produced fifty feet of ſquare timber at the moſt.

Now, ſuch is the improvement of commerce, or the art of thoſe who are concerned in it, that the round ſhaft of forty feet diſappoints the merchant, and the labourer who chips it is blamed, if it doth not meaſure ſixty feet when hewed; and four trees out of five are made to do it, ſo great is the improvement in hewing.

Wherefore ſmall timbers (viz. ſticks of a ton) which gain the moſt, if taken at the new metings, are equal to few naval purpoſes, being fit for ſloops, cutters, and inferior veſſels only. In time of war, ſuch diminutive ſtuff (though little in requeſt) muſt be taken, as your correſpondent truly informs us, to induce the merchants to furniſh requiſites. In time of peace, the yards being conſequently cumbered with ſuch traſh, the purveyors refuſe to admit any more of it.

As to "Hampſhire alone being nearly able to "ſupply the common conſumption of Portſmouth "Dock," which upon an average demands, I preſume, 8000 loads a year;* hear what Gilpin ſays of

* The conſumption of the Dock-yards in the whole, is 25,000 loads a year, of which, I have heard, that of Portſmouth amounts to near one-third.

that

that old, extenſive, famous nurſery of oaks, the New Foreſt. "*Many parts of it* are now in a ſtate "of extreme decay, being overſpread merely with "holmes, underwood, and ſtunted trees, which, in "the memory of man, were full of excellent oak."†

"*Setborn wood* ‡ was once the nobleſt of all foreſt "ſcenes, the grandeur and number of its oaks were "the admiration of all who ſaw them; but its glo-"ries are now over, it contains little more at pre-"ſent than ſhrubs, underwood, and blaſted trees."

"In a few years *Norley-wood* § will vaniſh; the "wood-cutters have entered it."

"*Denny-wood* ‖ has once been a noble ſcene, but "it is now ſtripped of its principal honours, and "conſiſts chiefly of beech, with a few decrepid "oaks ſtraggling among them."

It is not in theſe woods alone, but far and wide the foreſt ſcenes exhibit devaſtation, the new enclo-ſures only excepted, where the timber ſtands and ſpoils, for want of timely and judicious thinning.

"This foreſt, at the firſt appointment of a pur-"veyor in 1666,* did ſend five hundred oaks and "fifty beeches annually to the dock-yards, and "continued ſo to do, till being found unequal to "the taſk, the number became reduced to ſixty

† Gilpin's Foreſt Scenery, vol. ii. p. 35.
‡ Ditto, p. 105.
‖ Ditto, p. 148.
§ Ditto, p. 153.
* Ditto, p. 22.

"oaks; which, together with fifty beeches, are ſtill "annually aſſigned."

To what a ſtate of devaſtation then muſt ſixty-three thouſand eight hundred and forty-five acres of foreſt-land be reduced, when they cannot afford one oak from every thouſand acres for the yearly ſupply of the King's navy?* Were devaſtation confined to a ſingle foreſt only, the conſequence might not be much dreaded: but when we ſee it pervade the land; when private woods, as well as royal foreſts, groan under the woodman's axe; when the ſquirrels, which uſed to ſkip from oak to oak, are driven "to walk on foot" in ſearch of firs; it is time for us to reflect on the danger of our ſituation, and on the neceſſity of refraining from felling half-formed ſticks; a growing miſchief, alarmingly increaſed of late by the high price and great ſcarcity of bark, which has within theſe few years doubled its former value, and, as your correſpondent admits, cauſed the fall of numerous oaks in Devonſhire and Cornwall; which from his account muſt have been all ſap, or blea, of little preſent worth as timber, but might, if left ſtanding, have been the hopes and ſafeguard of future generations. Such deſtruction has been too prevalent in the Eaſtern, as well as Weſtern counties: to the ſtate of timber in the Northern, I profeſs myſelf a ſtranger. But when

† Gilpin's Foreſt Scenery, vol. ii. p. 27.

aſſured

aſſured from authentic documents,* founded on indiſputable facts, that the *aggregate of oaks* fallen in England and Wales, for thirty years paſt, hath amounted to *three hundred and twenty thouſand loads a year*, where is the man of reflection that will not be alarmed for the conſequences of ſuch a demand, conſidering the preſent ſtate of the woodlands round him? Whether this amazing quantity be conſumed in ſpokes, in laths, in beer-caſks, or what elſe, it matters not. The queſtion is, doth the progreſs of young timber keep pace with the conſumption? The obſervations of nine out of ten of the beſt-informed people with whom I have either correſponded or converſed, juſtify my opinion that it does not.

Take the country throughout, there may poſſibly be as many oak ſaplings in Great-Britain, at the preſent moment, as there were thirty years ago; but how long doth it take to form naval timber from a ſapling? and how can naval timber ever be produced of ſize, in any ſufficient quantity, whilſt we continue felling half-grown ſticks?

Your correſpondent need not fear the want of a demand for oak, that "weed of the country," even ſhould the breweries fail; for navigable canals (which may have their uſe in furniſhing our

* Such are in my poſſeſſion; though I am not at liberty to publiſh them.

dock-yards for a ſeaſon with naval timber from inland countries impervious heretofore) will of themſelves exhauſt theſe woods upon their borders, nearly as quick as they riſe. Their locks are numerous; their bridges infinitely more ſo; their barges as capacious as the brewers' tuns: the planking of one and all may poſſibly be ſawed out of full-grown timber, as may be their ribs and braces; but the ſtancheons of of their bridges, with the levers which raiſe them up and ſhut their locks, are formed of the buts of young thriving oaks, meting from ten to perhaps twelve feet per ſtick.

This is nipping hope in its bud. This is the miſchief we are bound to guard againſt. Hence ariſes the dread of want.

As a purchaſer, as a meaſurer of oak timber (both of which for private uſe, as far as a conſiderable extent of mill and water works requires, I acknowledge myſelf to have been,) I readily yield to your correſpondent, who has dealt on a larger ſcale, the pre-eminence due to him. But, bred near a dock-yard, nurtured in a foreſt, and habituated to obſervations on the growth of timber from my very childhood to the age of ſixty-three, ſtronger proof of plenty than the mere aſſertions of any one muſt be produced, before I can diſbelieve my eyes, or give up my opinion that ſcarcity is at hand, corroborated as I find it by the returns of able ſurveyors, employed by the Commiſſioners of the land-revenue

in

in almoſt every part of England, who concurrently declare, "That there is a general and alarming "decreaſe in the quantity of naval timber, both in "the foreſts and on private eſtates.*" To which the Commiſſioners themſelves, in their report, add, "*neral decreaſe of timber*, is too certain to admit "That their information as to the *reality* of the *ge*- "of any doubt.†"

After ſuch certificates as theſe, and the preceding evidence of our vaſt yearly conſumption, it behoves us immediately to provide againſt future want, by a cloſe attention to the preſervation of the few thriving oaks we have left, and to the propagation of a ſtock of young ones to ſucceed them when they fall. Not ſuffering the *ipſe dixit* of any individual, however ingenious, however well verſed in timber he may be, to lull us into imaginary ſecurity, leſt it prove fatal to theſe happy kingdoms; on whoſe maritime exertions our property, our lives, our liberty, and all that is dear to us, depend.

I am, ſir,

Your humble ſervant,

THO. SOUTH.

Boſſington, Hants.

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* Commiſſioner's Third Report, p. 4.

† Ditto, p. 5.

P.S. To explain what is meant by the modern improvement in hewing, to thoſe who are not converſant in the buſineſs, let circles No. 1 and 2 [*in the plate annexed*] ſuppoſed to repreſent the central part, or uſual girting place, of a ſhaft of oak forty feet long, and the periphery of ſuch circles to be four feet round; then the girt, which is one quarter of the periphery, will be twelve inches, and the meaſure of ſuch ſhaft will be forty feet, or a ton.*

When timber was hewed after the old method, the ſegments *a*, *b*, *c*, *d*, No. 1 were chipped off. A rule was then laid from *e* to *f*, and the number of inches between the perpendiculars *e*, *b*, and *f*, *g*, were conſidered as the ſide of a ſquare; which multiplied into itſelf gave the number of inches contained within its compaſs, which multiplied by twelve gave the contents of one foot in length, and that again by forty the contents of the tree.

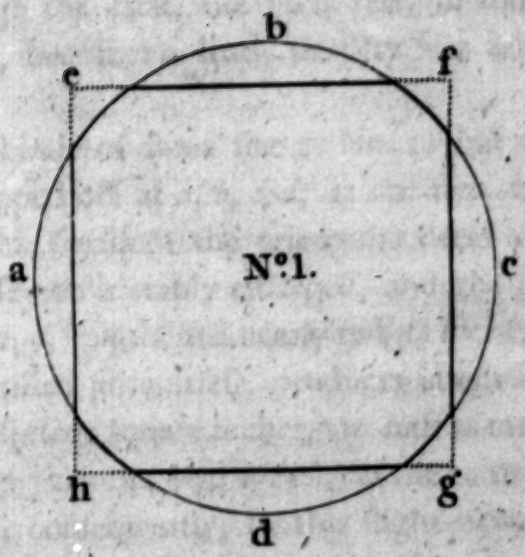
Thus the circle itſelf girting twelve inches, contains within the periphery 144 ſquare inches;† the triangles *e*, *f*, *g*, *b*, though areas only, are in ſquare timber taken as ſolids; then by multiplying the

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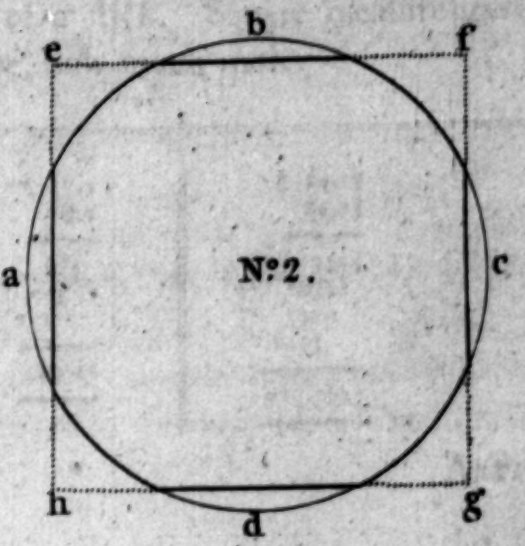
* The ſcale of theſe circles and ſquares being an eighth of an inch to an inch, they will bear trial, and be found on examination to ſtand the teſt, as near at leaſt as my dim eyes could draw them.

† Such circle certainly contains more ſquare inches; but from time immemorial, the girt-line folded into four (i. e. quartered) has been received by the timber-meaſurer as the baſis of admeaſurement, being convenient, though incorrect.

ſide



N°1.



N°2.





ſide *e*, *f*,† (or 13$\frac{1}{2}$ inches nearly,) into itſelf, about one hundred and eighty ſquare inches will be produced: that is, the ſquare contains thirty-ſix inches, or one-fourth more than the circle; and that extended through the ſtick, the forty feet, or ton of round timber, becomes a load, or fifty feet when ſquared.

No. 2 is a circle of ſame ſize as No. 1; but the ſegments chipped off at *a*, *b*, *c*, *d*, in the new method, are much ſmaller; the triangular areas *e*, *f*, *g*, *h*, of courſe conſiderably enlarged, and the ſide of the ſquare *e*, *f*, lengthened nearly to 14$\frac{3}{4}$ inches;‡ which, multiplied into itſelf, produces about two hundred and ſixteen ſquare inches, viz. half as much again (for 72+72=144+72=216,) as the contents of the circle; conſequently, by this ſlight hewing, a round ſtick of forty feet becomes half as much more (i. e. ſixty feet) when ſquared.

N. B. Round, or girt meaſure, gives leſs than the real contents of a ſtick. Square meaſure gave at all times more, now much more.

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† 13.5
13.5
675
405
135
182.25

‡ 14.75
14.75
7375
10325
5900
1475
217.5625

ARTICLE

Article V.

Obſervations on the American Buffalo, and his Superiority over the Engliſh Ox, in certain Properties; alſo, on the principal Mineral Productions already diſcovered in North-America.

[By Geo. Turner, Eſq; Judge of the Weſtern Territory.]

Communicated by A. Fothergill, M.D. F.R.S.

Dear Sir, *Philadelphia, May* 9, 1793.

YOU have laid me under another, and very particular obligation; you have procured me an honour to which, I am fearful, I had no juſt claim. I eſteem it a mark of your polite and friendly attention, and beg you to accept, in return, my warmeſt acknowledgments. Aſſure, Sir, the Bath and Weſt of England Society how greatly I am flattered by the honours they have done me, in placing my name among the members of a body ſo truly reſpectable. If at any time, and in any manner, I can aſſiſt or promote the laudable views of the Society, they may depend on the beſt of my poor endeavours.

I have peruſed, with much ſatisfaction, the Rules and Premiums of the Society. You have wiſely made agriculture the chief object of the inſtitution. I count it among the nobleſt purſuits of man. Having

ing ever myſelf been a friend to agriculture, you will readily conceive the intereſt I take in its improvement.

Perhaps, at a day not far diſtant, America will have the ſatisfaction of ſeeing her buffalo introduced to the attention and convenience of the Engliſh, and other European farmers. This animal might be made the farmer's beſt friend: he is gregarious, docile, alert, and of ſurpriſing ſtrength; his carcaſe affords excellent beef; and the horns, which are jet black and of a ſolid conſiſtence, take a poliſh of wonderful beauty: they can be converted into fabrics of uſe and ornament; ſuch as mugs, tumblers, cutteaux and knife-handles, &c. &c. In this way we ſometimes apply them; and when ornaments of ſilver, or mother-of-pearl, are employed, the contraſt with the poliſhed black of the horn is agreeably ſtriking.

The American buffalo is, if I miſtake not, the biſon of Buffon. Immenſe herds of this animal roam at large, in Interior America. From Green River to the Miſſiſſippi, the ſhores of the Ohio are lined with them. The hunters are too apt to deſtroy them wantonly: a circumſtance much to be regretted, and not to be prevented. Frequently have I ſeen this fine animal killed; and, excepting the tongue and the tallow, left on the ground, a prey to the tygers, wolves, and eagles. The boſs on the ſhoulders of the buffalo is, as well as the tongue,

tongue, extremely rich and delicious,—ſuperior to the beſt Engliſh beef. It is uſual to cure the tongues, and tranſport them to New-Orleans; where they are ſure to meet with a good market.

There is a ſingular, an affecting trait in the character of the buffalo, when a calf; and my feelings have ſeverely felt it. Whenever a cow buffalo falls before the murdering lead of the hunters, and happens to have a calf, the helpleſs young one, far from attempting an eſcape, ſtays by its fallen dam, with ſigns expreſſive of ſtrong and active natural affection. The dam thus ſecured, the hunter makes no attempt on the calf, (knowing it to be unneceſſary) but proceeds to cut up the carcaſe: then laying it on his horſe, he returns towards home, followed by the poor calf, thus inſtinctively attending the remains of its dam. I have ſeen a ſingle hunter ride into the town of Cincinnati, between the Miames, followed in this manner, and at the ſame time by three calves, who had loſt their dams by this cruel hunter.

Since I have expreſſed a wiſh to ſee the buffalo domeſticated on the Engliſh farms, I will now mention a fact concerning it, within my own knowledge. A farmer, on the Great Kenhawa, broke a young buffalo to the plough; having yoked it with a ſteer taken from his tame cattle. The buffalo performed to admiration. Enquiring of the man, whether he had any fault to find with the buffalo's performance, he

he anſwered, there was but one objection to it: the ſtep of the buffalo was too quick for that of the tame ſteer. "My friend," ſaid I, "the fault lies "not in the buffalo, but in the ſteer: what you term "a fault in the former is really an advantage on its "ſide." Till this moment, the man had laboured under one of thoſe clouds of prejudice but too common among farmers. He had taken the ox of his father's farm, as the unit whence all his calculations were to be made, and his concluſions drawn:—it was his unchangeable ſtandard of excellence, whether applied to the plough or to the draught. No ſooner was my obſervation uttered, than conviction flaſhed on his mind. He acknowledged the ſuperiority of the buffalo.

But there is another property in which the buffalo far ſurpaſſes the ox:—his ſtrength. Judging from the extraordinary ſize of his bones, and the depth and formation of his cheſt, I ſhould not think it unreaſonable to aſſign nearly a double portion of ſtrength to this powerful inhabitant of the foreſt. Reclaim him, and you gain a capital quadruped for the draught and for the plough: his activity peculiarly fits him for the latter, in preference to the ox.

If this part of my letter, reſpecting an animal but little underſtood in Europe, and not ſufficiently noticed in America, ſhould appear to you not altogether unintereſting, nor too foreign to the immediate

diate objects of the Bath Society, you are at liberty to communicate it, if you please.

We will now return to your favour before me; the perusal of which has given me great pleasure.

You very properly conceive that America abounds in various metals. I believe she has a full proportion. We have multifarious proofs of it.

Native malleable copper is found in several parts, and sometimes in blocks of considerable magnitude; —witness the southern shores of Lake Superior. A substance resembling *block-tin* has been discovered on the Siota. What this metal is, I cannot yet determine, having never assayed it. As it is not mineralized with any other body, but, on the contrary, is pure and malleable, pervading in ramifications the mass of stone that contains it, I conceive it cannot be tin. It may possibly be a *new* metal; or, *possibly*, fine silver. *Lead* is abundant in the country west of the mountains; and there is a mine of it in Virginia, worked on an extensive scale, and, I am told, with considerable profit. The Western Territory affords very rich specimens of this mineral. *Black Lead* is common in many parts, without being confined to that or this side of the mountains. Hitherto, it has been applied solely to the making of crucibles, and to some inferior purposes. None of a quality sufficiently tenacious for pencils has yet been discovered, or, rather, sought for. Some *silver ore* has been seen, here and there: but

but there can be little doubt that conſiderable mines of it lie hidden in that enormous chain of mountains which ſeparates the Eaſtern from the Weſtern part of this continent.—Long may they remain buried! and may Americans be taught, by the ſweets of experience, that it is not the digging into the mine, but the careful cultivation of the ſoil, which yields the greateſt quantity of the precious metals! Unhappy Mexico! unhappy Peru! and Spain herſelf not happy!

Beſides the above, we have plenty of *iron*, *ſalt*, and *coal*; and, in ſome places, *alum*, and *ſulphur*. The coal, of what is called *Duncan's Mine*, at Pittsburg, is equal to the beſt I have ſeen in the Engliſh counties of Northumberland and Durham. I am poſſeſſed of ſome curious ſpecimens of this foſſil, in all its ſtages, from the vegetable to the coal ſtate.

With reſpect to the *cochineal*, it is by no means a ſtranger to the northern continent of America. I have repeatedly ſeen the inſect in Eaſt-Florida, Georgia, and South-Carolina; of all which countries it is a native: but in Weſt-Florida only did I ſee the true plant on which it feeds in more ſouthern countries—and that but ſeldom. In Carolina and Georgia, where they have the *dwarf* opuntia only, I have ſeen the plant white with theſe inſects; ſo numerous were they in a certain ſeaſon of the year. It will be ſome time, however, before cochineal will

attract

attract the attention of our planters: their ſtaples, rice, indigo, and tobacco, will forbid it.

I obſerve, with ſingular ſatisfaction, the many diſcoveries and improvements of the preſent generation. This, Sir, is an age of ſcience—an epoch of great events. It will ſtand as ſuch on the future records of hiſtory, when the veil of prejudice ſhall be drawn aſide, and the mirror of truth introduced. By the ſplendour of its ſpirit and reſearches; by the magnitude of revolutions now crimſoning the world with blood; the latter end of the eighteenth century will aſtoniſh and confound ſucceeding ages.

I ſhall write to you again. At preſent I am obliged to leave off, to forward the laſt preparations for my journey weſtward.

I beg you, good Sir, to believe me impreſſed with ſentiments of eſteem towards you; and that I am

Your obliged

and moſt obedient ſervant,

G. TURNER.

Article VI.

On the Method of making Parmeſan Cheeſe, by Mr. Pryce, of Sarum, then at Rome.

[In a Letter to the Secretary.]

Sir, *Rome, Jan.* 1, 1793.

AS the attention of the ſociety is particularly directed to ſome dairy counties, it may not perhaps be unacceptable, if I ſend you an account of the method of making the famous Parmeſan cheeſe.

Amongſt the friendly offices of Sig. Moſchata, the celebrated profeſſor of anatomy at the univerſity of Milan, I was introduced to Sig. Vitabni, who is noted for his dairy, and lives about two miles from the Roman gate of that city. I truſt that none of my countrymen will think the profeſſion of a dairy-man diſgraced in the perſon of Sig. Vitabni, when I inform them that he keeps a chariot and pair of horſes that would do no diſcredit to an Engliſh nobleman; and if I may judge from the number of poor I ſaw relieved at his door, appearances are not his only recommendation.

At ten o'clock in the morning, five brents and a half of milk, each brent being about forty-eight quarts, was put into a large copper, which turned on a crane, over a ſlow wood-fire, made about two

feet

ſeet below the ſurface of the ground. The milk was ſtirred from time to time; and, about eleven o'clock, when juſt luke-warm or conſiderably under a blood-heat, a ball of rennet, as big as a large walnut, was ſqueezed through a cloth into the milk, which was kept ſtirring. This rennet was ſaid to have been purchaſed of a man at Lodie, famous for the compoſition; but that it was principally made of the ſame part of the calf as we uſe in England for that purpoſe, mixed up with ſalt and vinegar: it appeared to me to be alſo mixed with old cheeſe. I much doubt whether there was any great ſecret in the compoſition: but it ſeems to me that the juſt proportion of rennet is a matter of conſequence, which is not in general ſufficiently attended to. By the help of the crane, the copper was turned from over the fire, and let ſtand till a few minutes paſt twelve; at which time the rennet had ſufficiently operated. It was now ſtirred up, and left to ſtand a ſhort time, for the whey to ſeparate a little from the curd. Part of the whey was then taken out, and the copper again turned over a fire ſufficiently briſk to give a ſtrongiſh heat, but below that of boiling. A quarter of an ounce of ſaffron was put in, to give it a little colour; but not ſo unnaturally high as ſome cheeſes in England are coloured; and it was well ſtirred from time to time. The dairy-*man* (this is not women's work in Italy) frequently felt the curd. When the ſmall, and, as

it

it were, granulated parts, felt rather firm; which was in about an hour and half, the copper was taken from the fire, and the curd left to fall to the bottom. Part of the whey was taken out, and the curd brought up in a coarſe cloth, hanging together in a tough ſtate. It was put into a hoop, and about a half-hundred weight laid upon it, for about an hour; after which the cloth was taken off, and the cheeſe placed on a ſhelf in the ſame hoop. At the end of two, or from that to three days, it is ſprinkled all over with ſalt: the ſame is repeated every ſecond day, for about forty to forty-five days; after which no further attention is required. Whilſt ſalting, they generally place two cheeſes one upon another; in which ſtate they are ſaid to take the ſalt better than ſingly.

The whey is again turned into the copper, and a ſecond ſort of cheeſe is made; and afterwards even a third ſort, as I was informed;—a piece of œconomy which I have not known practiſed in England.

With beſt wiſhes for the proſperity of the ſociety, I remain, ſir,

Your very humble ſervant,

BENJAMIN PRYCE.

P. S. I have kept this letter ſome time, in expectation of ſending it in a packet to England; and now ſend it by the poſt from Naples.

Article VI.

Extract from a General View of Agriculture, in the County of Dorſet; with Obſervations on the Means of its Improvement.

[By John Claridge, of Craig's-Court, London.]

And accompanied by occaſional Remarks by the Editor of this Volume.

ON SHEEP.

THE advantage derived from ſheep, in the county of Dorſet, is very conſiderable, and it is undoubtedly its greateſt object as an agricultural reſource; indeed, of ſo much real importance as to be productive of great national benefit. The number of ſheep kept in the county, from the beſt enquiry and computation I have been able to make, amounts to upwards of 800,000; and the number ſold annually and ſent out of the county, amounts to upwards of 150,000. The greateſt advantages are derived from them, as well from the profit upon the fleece and carcaſe, as from the quantity of ground manured by them, which I ſhall endeavour hereafter more minutely to point out.

In one particular inſtance the ſheep-owners excel all other parts of the kingdom; which is in providing ewes to yean at a remarkably early ſeaſon, in the Midland counties, which ſupply the metropolis with

with fat lambs.—In order to ſhew the principle on which this mode of grazing is carried on, I ſhall venture to give a detail of their proceſs and management, as far as it has fallen under my obſervation.

To deſcribe the true Dorſet ſheep may be difficult, as to its ſize and ſhape, but I apprehend, that if the face and noſe are white, and the claws or feet without any mixture of colour, the forehead woolly, and the face long and broad, the horn round and bold, and projecting rather forward, a broad ſhoulder, ſtraight back, broad loin, deep carcaſe and ſhort in the leg, it is the neareſt to the true deſcription of a Dorſet ſheep. This attention to have the ſheep without colour, is conſidered of material conſequence by the breeders of early lambs, as they are ſaid to be of more value for the London market, on account of the extreme delicacy of the meat.

The ſeaſon for putting the moſt forward ewes to the ram, is the laſt week in April, for ſuch as are to be ſold the following autumn. And for the flock (which are to be kept) about Midſummer. The lambing-ſeaſon, therefore, for the forward ewes, is about the middle of September, and they are ſold about a fortnight before this time at the fairs near London, from twenty-ſix to thirty-two ſhillings each. The lambs produced from theſe ewes are ſuckled in the houſe, on many farms round the metropolis, which makes the houſe-lamb fit for

the table as early as Chriſtmas. The other part of the flock leſs forward do not yean till the beginning of December, but thoſe yield a conſiderable profit, by their lambs being fattened upon graſs, very early in the ſpring, near London, and produce what is called the earlieſt graſs-lamb. The lambs kept in the hands of the breeders are always taken from the ewes in May, and are then worth eleven or twelve ſhillings each. They are always ſhorn in this county about Midſummer, and produce from one pound to one pound and a half of wool each, and the ewes are alſo ſhorn about the ſame time. worth about thirteen or fourteen ſhillings per head; at Lambs when ſhorn, if for ſale at the fairs in July, are one year old the animal is called a hog, and produces four or five pounds of wool, and the carcaſe is worth about a guinea. The ſecond year, the ſheep is a four-tooth; the fleece produces about four pounds and a half of wool, and the carcaſe is worth about twenty-five or twenty-ſix ſhillings. The third year the ſheep is a full-mouthed wether, and produces about five pounds of wool, and is then worth thirty ſhillings or a guinea and a half, is ſeldom kept longer, but generally ſold from the county. If, however, the ſheep be kept well, the next year, its weight will be twenty or twenty-five pounds per quarter, and will produce thirty-ſix or thirty-eight ſhillings.

The wool produced in this county is ſhort and fine, of a cloſe texture, and the quality of it is highly eſteemed

eſteemed in the manufactory of that ſtaple commodity called broad-cloth. It is ſold here by weys or weights of thirty-one pounds ſtanding, and the average price is ten-pence or ten-pence halfpenny per pound; lambs wool produces about an halfpenny, or a penny per pound leſs.

There are no ram fairs, or farmers who let out rams for hire for the ſeaſon, in this county; but they are chiefly bred from the farmer's own ſtock, are put with the ewes at about a year and a half old, and the better ſort of them are not eſteemed of a higher value than three or four guineas per head.

The wether ſheep are conſtantly folded all the year round, running over the ewe leas or downs by day, and are penned on the tillage by night; they are penned late in the evening, and let out from the fold before ſunriſe in the winter, and not later than ſix o'clock in the ſummer. The ewes are folded only in ſummer, that is, when they have no lambs.

The mode of penning ſheep, indeed, varies in ſome parts of the county, as well as the ſize of the hurdle; but in general the ſize of the hurdle is about four feet ſix inches long, and three feet ſix inches high, made chiefly of hazle, with ten upright ſticks; and fifteen dozen of them, with a like number of ſtakes and writhes, to confine them together, will incloſe a ſtatute acre of ground, and will contain twelve or thirteen hundred ſheep therein very

commodiouſly. The hurdles are moved every morning; conſequently the ſame number of ſheep will manure an acre of land daily. One penning is never eſtimated worth leſs than half a guinea, or twelve ſhillings per acre, and two at a guinea. The hurdles are worth ſeven ſhillings and ſix-pence per dozen, including ſtakes.

The ſheep are conſtantly attended by a ſhepherd the whole day, whoſe wages is ſix ſhillings per week, a great coat yearly, and a breakfaſt on a Sunday. A dog is found and maintained by the ſhepherd; and the maſter has the ſkins of the dead ſheep.

It is a practice with many farmers in the incloſed part of Dorſetſhire, to buy lambs at twelve or thirteen ſhillings per head, keep them two years, and ſell them to butchers at twenty-five or twenty-ſix ſhillings each.

It is generally underſtood that the original breed of the Dorſet ſheep is very ſcarce to be met with, as moſt of the farmers have croſſed their flocks with the breed of the Hants, Wilts, and Somerſetſhire ſheep, which have certainly improved them, as to ſize; and I have not obſerved any perſon more ſpeculative as a farmer and grazier in the county, than Mr. Bridge of Wenford-Eagle, who has tried various ſorts, and has now introduced Mr. Bakewell's Leiceſterſhire breed into the county, which he thinks are quite as fine in the wool as his own,

and

and thoſe he has bred are full as large as the Leiceſterſhire. He is aiming to produce lambs from them, as early as the home breed, and is ſanguine in his belief, that the lambs will be as delicate in the grain of the meat as thoſe which are bred from the true Dorſets. He is alſo of opinion, that they are full as hardy, will be ſupported with leſs fodder, and that both the wethers and ewes of this breed will fat faſter than the old Dorſets. At preſent this is an experiment, the trial of which certainly does him great credit:* though the opinion againſt this project is in general unfavourable to its ſucceſs.—It is ſuppoſed, that the lambs being ſo much larger will not retain the uſual delicacy, and that it may open a new trade in other parts of England, to ſupply the London market with early lamb; but on this latter point, I think, there is little to fear, as there are no water-meadows in ſufficient proportion in any other part of England; which are ſo well managed as in Dorſetſhire, and which are ſo eſſentially neceſſary to the produce of the early breed of ſheep.

Beſides the ſheep peculiar to Dorſetſhire, there is another very ſmall breed in the county, in the

* Will Mr. Bridge be ſo obliging as to communicate to the Bath and Weſt of England Society, the reſult of his experiments on this important ſubject, and whatever obſervations of his may occur from the proceſs? EDITOR.

neighbourhood

neighbourhood of Weymouth, in the iſle of Portland, the iſle of Purbeck, and about Wareham and Poole, which are inferior in ſize to Welch ſheep: when fat will weigh not more than eight or nine pounds per quarter; and the beſt of the ewes to yean, are not worth more than fifteen or ſixteen ſhillings per head.*

A GENERAL AVERAGE OF THE PRODUCE OF WOOL:

Wethers.		*Ewes.*	
Firſt year, a hog,	1½lbs.	Firſt year, a chilver	1½lb.
2d ditto, four tooth	4½lbs.	2d ditto,	3½lbs.
3d ditto,	2 lbs.	3d ditto, ſix tooth	5 lbs.

Upon the whole, from a due obſervation of the quality and number of ſheep bred and kept in the county, it may be ſuppoſed, with ſome degree of accuracy, that the produce of wool, annually, is ninety thouſand weys, or weights of thirty-one pounds each.

The number of wethers ſold	50,000
The number of ewes	100,000
The number reared	450,000
And the home conſumption	200,000

It is incumbent on me to take notice of a diſorder peculiar to ſheep, which is ſometimes fatally

* Will any Dorſetſhire Gentleman be pleaſed to point out the particular name, the ſuppoſed origin, and peculiar value, (for almoſt every diſtinction of ſheep will be allowed to have ſome local excellence) and the nature and value of the wool? EDITOR.

experienced

experienced in this county, called the Goggles; it attacks them at all ages, and no remedy is at preſent known for it; the firſt ſymptom is a violent itching, which is very ſoon ſucceeded by a dizzineſs in the head, ſtaggering, and a weakneſs in the back, as if the ſpinal marrow was affected; under which they ſometimes languiſh a few weeks; and this diſorder has been known to be fatal to the greateſt part of a flock, and is conſidered as the moſt calamitous circumſtance the ſheep-owners have to dread. It is very difficult to aſſign the cauſe of this diſorder; but ſome of the old-faſhioned farmers think that, as no ſuch diſeaſe exiſted prior to the introduction of the breed from other counties, conſequently its origin may be imputed to this cauſe; but this is an argument perhaps of prejudice, grounded merely on conjecture, tho' I own I am inclined to give it ſome credit. †

HORSES,

† Every Gentleman of reflection, like Mr. Claridge, will have reaſons for his opinion; and it is to be wiſhed that he had ſo far digreſſed from his ſtyle of narration, as to have given his reaſons for being in the leaſt degree of *this* opinion. The ſubject is important, in proportion to the deſtruction made in flocks by this diſeaſe, even were it peculiar to the county of Dorſet; but the idea of its being *introduced by mixture*, implies the exiſtence of the diſeaſe elſewhere, and indeed it is a fact too generally known by experience. Particular diſtricts, and races of ſheep, and at particular ſeaſons, may be more ſubject to it than others; but it is a diſorder incident to *the animal*. That it has been ſo little treated on, in our beſt publications on Agriculture, is matter of ſurpriſe; and this ſociety has, for a number of years, ineffectually

HORSES, CATTLE, AND DAIRIES.

THE breed of horſes in this county is not particularly attended to: a ſlight blood horſe is made uſe of for the field and road, and a very ordinary ſtyle of cart-horſe uſed in agriculture. Some cart-colts are bred in the vale of Black-moor; and many others are brought in, either as ſuckers or yearlings, from other counties. Some individuals indeed have good teams, and are very careful of their horſes; but from general obſervation, I am perſuaded the Dorſetſhire farmers pay but little attention to the ſhape, ſize, or ſymmetry of the cart-horſe. The ſtallions are chiefly working-horſes of farmers, and cover mares, at half a guinea each, for the ſeaſon; and an average price for a cart-horſe, at five years old, is ſixteen or ſeventeen guineas.*

I was

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fectually offered a premium for the beſt account of the diſeaſe and cure. It is doubtleſs believed, by ſome ſheep-farmers, that they have made ſome diſcoveries of the *moſt probable* cauſe of the goggles, and perhaps alſo the means of retarding its progreſs in a flock, if not of the means of curing the diſeaſe. Every communication on this ſubject, from perſons who have cloſely attended to it, and who wiſh well to the publick, will be gladly received by the ſociety. EDITOR.

* Wherever horſes are uſed in agriculture, which (with every predilection for oxen) muſt be the caſe in ſome diſtricts, it is of great importance to adapt their ſhape and ſize to the buſineſs required. It is an object worthy of much conſideration. Some particular ſize and properties of the horſe muſt claim a decided preference. It cannot

be

I was glad to find that oxen are often uſed in agriculture here; and the breed are of two kinds: thoſe on the weſtern ſide of the county are chiefly from the red ox of Devonſhire, an excellent ſort;† and the others in the more eaſtern and northern parts, are a mixture of the Hampſhire and Wiltſhire, with many croſſes of the Oxfordſhire, Glouceſterſhire, Shropſhire, and North-country beaſts. As

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be right to encourage all, or various growths, for ſimilar purpoſes in ſimilar ſituations: and there is ſo great a difference between the expence of a horſe far too big and heavy, and one of ſufficient ſize to anſwer the end, (whether we conſider the *keeping*, the *movement*, or the *caſualty* which attaches to large and coſtly horſes) that the prejudice for *ſhew* ſeems to require much correction. It is a known fact reſpecting this animal, that ſtrength of bone and ſinew is not in proportion to largeneſs of ſize; but they are found to be denſe and ſtrong as the horſe approaches in fineneſs, even to the racer. And thoſe farmers who have made cloſe remarks on this ſubject, and have given a fair trial to the lower compact horſes, not fifteen hands high, but of good ſymmetry, have found and muſt find their account in uſing them. Perhaps a ſtronger proof cannot well be urged in favour of a diminiſhed ſize, than the well known capability for great labour, even of the ſmall horſes of the New Foreſt, when trained to waggon uſes.—This is a fact which, if duly reaſoned from, would remove much prejudice, and do much ſervice to the country. One ſtrong inducement to many capital farmers to breed and train colts of the largeſt ſize, is the demand for dray-horſes in the capital, and the large prices they bring: but theſe inducements cannot operate generally; and perhaps, in moſt inſtances where they do operate, they influence too far for individual or general advantage. EDITOR.

† The foregoing remarks on the horſe will, in ſome degree, apply to the Devonſhire ox, as a creature for labour in agriculture.—They have confeſſedly the advantage over larger oxen, for expedition and

continued

As the cattle are very much uſed in dairies in this county, very little attention is paid to the ſize of the beaſt, or to ſhape or colour, but if likely to make a good milker, it ſeems all that is neceſſary, and is worth from eight to ten guineas, to come into the dairy at a proper age.

The oxen chiefly fed in the county are of the Devonſhire breed, and go when fat to Smithfield market, and are ſaid to be the fineſt grained meat in the kingdom. Theſe are moſtly fed in the vale of Blackmoor, which extends from north to ſouth about nineteen miles from Gillingham and Silton, to Danton and May Powder; and, from eaſt to weſt, from Compton and Sutton, about fourteen miles, to North-Wotton and Long-Burton, and contains upwards of one hundred and ſeventy thouſand acres of very rich land, chiefly grazing, dairying, and about one-tenth part in arable, with ſome plantations of orchards.

Through this vale runs the river Stower, which is now undergoing a great improvement, from the general act of ſewers, by cutting down the ſides and removing

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continued labour, cheapneſs of keeping, and quickneſs of fatting.—And if there be little reaſon for objection againſt the Devonſhire cow, on account of her giving leſs milk in proportion than others, (which objection is not allowed by ſome good judges) this race of females alſo requires more preference than ſeems to have been given it.

EDITOR.

removing obſtructions, which will tend to the general drainage of the country, and be a laſting improvement. Some of the land upon the ſide of this river, is rich enough for an acre and a quarter to carry a full-ſized Devonſhire ox through the ſummer. Moſt of the hay in this vale is of an excellent quality, and beaſts thrive well through the winter upon it, without any other food. An average value of it to the farmer is forty ſhillings, but if ſold to towns, it produces fifty ſhillings a ton. One ton of hay will keep an ox twelve weeks, allowing him one hundred weight and a half per week, which is ſufficient to laſt from Chriſtmas to the middle of April; the profit upon the ox is eſtimated at five pounds a head each, and barren cows and heifers are reckoned to pay fifty ſhillings per head each.

There is a ſhew of cattle and ſome ſheep at Stalbridge, in this vale, every Monday fortnight thro' the year, which is the beſt market for fat cattle in the county, and about one hundred and twenty in number are bought and ſold here, one market day with another.

The other cattle grazed here, are either home breds, or heifers brought from Ringwood and other Hampſhire fairs, and when fat, ſupply the home-market, and ſometimes are ſent to Saliſbury.

The breed of pigs in this county is not ſo good in ſhape, as either the Hampſhire, Berkſhire, or Hertfordſhire

Hertfordſhire ſort; they are of a light colour, feed to about nine or ten ſcore on an average for bacon, and are worth about ſix ſhillings and ſix-pence, or ſeven ſhillings per ſcore. As there are ſo many dairies, an improvement in the breed of this animal might be made by the introduction of the ſorts before deſcribed.

The dairies extend all over the county, cow-calves in general are reared, and bull-calves afford a ſupply of veal. The management of the dairy, as every where practiſed in Dorſetſhire, is unknown to many other parts of the kingdom. The cows are all let out by the farmer, to a dairy-man, at a fixed price for each cow, according to the quality of the land and produce of the beaſt: in ſome of the pooreſt parts of the county as low as fifty ſhillings, or three pounds per head per annum; and in others, as high as ſix pounds ten ſhillings, or ſeven pounds; and in one pariſh near Beaminſter, called Broad-Windſor, as high as eight pounds: but I believe the general average throughout the county will be about ſix pounds for a cow of full growth; four pounds for heifers, and four pounds ten ſhillings, or five pounds, for three years old. The uſual plan for letting a dairy is this: the farmer finds the dairy-man a certain number of cows for one year, commencing at Candlemas, at a fixed ſum agreed on; he feeds, fodders, and ſupports the ſpecific number throughout the year; he finds a houſe for the

the dairyman and his family to live in, and allows him to keep as many pigs and poultry as he thinks proper, and the keep of a mare to carry out his butter, &c. which, by producing a foal yearly, is conſidered a material advantage to the dairyman, who perhaps ſells it when weaned, in November, for from eight to ten pounds. If the farmer is inclined to let his dairy to another man, he gives the dairyman notice before All-Saints Day, and by cuſtom the quarter of a year, from November to February, is deemed ſufficient, and the dairyman quits the houſe and gives up his bargain the enſuing Candlemas. The dairies in general are managed by making all the cream into butter, and from the ſkimmed milk, an inferior ſort of cheeſe, which ſells from twenty-five to thirty ſhillings per hundred weight in the county; and the butter, which is worth from eight-pence to ten-pence per pound, is in general ſalted down in tubs, and ſupplies Portſmouth and the London markets; but there is alſo made a conſiderable quantity of the better ſort of cheeſe, which brings a price as high as thirty-ſeven ſhillings, or two guineas per hundred weight.

The grazing, however, in many other parts of the county, cannot be rated ſo high as the vale of Blackmoor allows me to do, and it will be found nearer the true average upon the feeding land; that two acres will ſummer a beaſt, and that the profits no willt exceed three pounds per head. Some farmers,

mers, particularly in the neighbourhood of Dorcheſter, and indeed in many other places, are very choice in their cows; and I had frequent opportunities of ſeeing ſeveral dairies, which did great credit to the owner's taſte and judgment. The partiality for the Derbyſhire and Leiceſterſhire ſorts is certainly moſt prevalent, and the obſervation is juſt, that thoſe cows from the North-country breed carry infinitely more fleſh than the home breed, and thoſe moſt ſanguine in this opinion are poſitive that they produce quite as much milk, and of equal goodneſs: but of this I have my doubts, particularly as they conſider ſeven or eight quarts at a milking, an abundant quantity, with the beſt keep; which is certainly much leſs than the produce in many other parts of England.

COMMONS AND WASTE LANDS.

Of the commons in Dorſetſhire, the greater part of them, in the incloſed country, are ſtinted—one horſe or two beaſts to a lea: the horſe lea is eſtimated worth thirty ſhillings, and half that ſum for a beaſt. The lands, in general overrun with furze and ant-hills, do not in their preſent ſtate return more than ſeven or eight ſhillings per acre; but moſt of them highly proper to cultivate, and if converted would be worth eighteen or twenty ſhillings an acre, as lime for manure is eaſily to be obtained.

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The greateſt proportion and extent of waſte-lands in the county, is in its ſouth-eaſtern part from below Bere-Regis; ſouthward, towards Lulworth and the ſea, extending all the way to Corfe-Caſtle, Wareham and Poole, from thence towards Chriſtchurch in Hampſhire, and within a ſmall diſtance of Wimborn-Minſter, (the greater part of which, except a few cultivated pariſhes which interſected it) is in its preſent ſtate a moſt dreary waſte, and almoſt the only advantage derived from it at this time is the ſupport in ſummer of a few ordinary cattle and ſheep; and the heath, which is pared up by the ſurrounding villagers for fuel.

The towns of Wareham and Poole, which are ſituated moſt contiguous to this uncultivated country, are of conſiderable conſequence; the latter is by much the greateſt port in the county, and to which at leaſt two hundred ſail of ſhipping are ſaid to belong; an extenſive trade is carried on to Newfoundland, which imports above two thouſand tons of ſeal-oil annually, beſides one thouſand tons of train-oil.

There is but one road into the town of Poole, and, from the large ſpace the tide flows over adjoining to it, the property about it is ſo curtailed and ſurrounded, that land ſeems wanting for the neceſſary convenience of the inhabitants.

A material improvement ſtruck me, during my ſhort viſit there, which I think might be made by

throwing a draw-bridge over to the oppoſite neck of land, and making a quay all the way along, directly oppoſite to the town: this idea brought to my remembrance the ſituation of the port of Yarmouth in Norfolk, where, on the Suffolk ſide of the haven, which now belongs to Mr. Anſon, member for Litchfield, and which twenty-five years ago was rented by butchers at thirty ſhillings an acre, it has been, by Mr. Kent, agent to the eſtate, divided into ſmall parcels, and let on building leaſes, and is now become a perfect quay, and covered with buildings and ſtores of all kinds. At firſt ſight, the borough of Great Yarmouth viewed this creation with a jealous eye; but the advantages accruing to them, in point of convenience to their trade, have been ſo great, that there is ſcarcely a merchant of eminence reſiding there at this time who does not hold a part of this land, and is anxious to lay out his money in buildings for the convenience of his merchandize; this has been a wonderful improvement to the owner of the fee, as it has increaſed his income from the price paid as before-mentioned to ſeven pounds an acre, and has afforded a real convenience to the trade of the town; and I have never ſeen any place more capable of improvement than the ground before deſcribed.

In paſſing over this part of this county, the ſoil is found extremely barren, and will certainly require long time and trouble, beſides great expence,

to

to get it into a ſtate of cultivation; but thoſe ſmall ſpots which have been incloſed and ſeem like encroachments from it, although in the hands of very poor people, point out how very capable the whole is of improvement: and I am perſuaded, that if the property in the vicinity of Poole, which abounds with inhabitants of great opulence and reſpectability, were to be parcelled out and let in ſmall lots upon long leaſes, it would ſoon wear a face of cultivation highly profitable, and would in a few years be trebled in value, inſtead of being at preſent a mere blank, and producing no real benefit to its neighbourhood, or the community at large.

GENERAL OBSERVATIONS.

Very few pariſhes in this county have of late years been incloſed; there are ſome, however, between Wimborn-Minſter and Blandford, and in the vale of Blackmoor, which are ſaid to anſwer extremely well, and to have much increaſed the value of the property therein; but there are no eſtates in the county which have increaſed in value ſo much as thoſe about towns and villages upon the coaſt, which are reſorted to annually by viſitors for the purpoſe of bathing; in theſe places, ſuch as Lyme, Weymouth, &c. houſes have been doubled, and in many inſtances trebled in value. In the laſt twenty

years, not fewer than three hundred perſons on an average are ſaid to have viſited the former place every ſummer, and four or five times that number the latter, which greatly increaſes the value of the land round theſe places.

Proviſions, however, are plentiful; and beſides a great abundance of moſt excellent fiſh, the markets are ſupplied in moſt parts of the county with beef, at four-pence per pound; mutton, at four-pence halfpenny; chicken, at fifteen-pence per couple; geeſe, half-a-crown each; and turkeys, at three ſhillings and ſix-pence each.

I conſider the great outlines for improvement in Dorſetſhire to conſiſt in the introduction of the Norfolk huſbandry, which is certainly the moſt productive of any arable diſtrict in the kingdom—the ſeparation of tenures—the cultivation of waſte land, and the ornamenting of it by plantations; and, I truſt, under ſo valuable a patronage as that which it will now have, a ſpirit of improvement will be excited equal to its natural reſources: and if in the preceding repreſentation I have pointed out any idea which may lead to its advantage and proſperity, I ſhall think my labour amply compenſated.

Article VI.

On the Properties and Uſe of Mangel-Wurzel.

[TO THE SECRETARY.]

SIR,

THE honour I have received in being elected a member of the Bath Agricultural Society, I muſt attribute in part to the kindneſs of Dr. Lettſom, to whom I have candidly reported every thing which has occurred in my endeavours to cultivate, to the beſt advantage, that valuable root the *Mangel-Wurzel*; his manner of introducing which marks his philanthropy ſo ſtrongly, that were it poſſible to obliterate the ſeries of benevolent actions which have diſtinguiſhed his character, I ſhould ſtill feel an exultation, in having my name mentioned with his in this purſuit. I am even proud of having been called "The Muzzle-Fuzzel Knight," by ſome of my neighbours, who wiſhed to place me in a ridiculous light, for having attempted in vain to enforce the uſe of coal-buſhels in retail trade, correſponding with thoſe by which the duty is paid. The difference of a heap on a circle 19½ inches diameter, or on one of 16 inches, is no trifle, eſpecially to the poor; the care of whom is, I hope, not ſo foreign to the views of the Bath Society, as this digreſſion is to the culture of Mangel-Wurzel; my firſt trial of which was in the year 1788,

of

of which Dr. Lettſom publiſhed my report to him in the Gentleman's Magazine, for January or February 1789: it was intended only to ſee whether it was materially different from any of the beets to be then bought in the London ſeed-ſhops, of which there is now no doubt; but I apprehend attention to ſelecting proper roots to ſave ſeed from, is the great point in promoting the future cultivation of it. For partial as I am to it, if I cannot procure crops of it, which will chiefly riſe above the ſurface of the ſoil, like the long pudding turnip, I ſhall greatly abate in my preſent hopes of it. I do not wonder that every body condemns it, who has only ſeen ſuch as have grown with the crown cloſe to the ground, and ſent out large forked roots. This, eſpecially in a ſtiff ſoil, muſt be an inſurmountable objection, and may ultimately prove to be in the nature of ſome ſoils, or remediable by ſome mode of culture.

My crop of the year 1788, having been produced from little more than a thimble-full of ſeed, was chiefly diſtributed to perſons who applied to me for roots to ſave ſeed from. In the year 1789, I ſowed about an acre with ſeed procured from Dr. Lettſom. I kept one ſmall hog ſix weeks, in a place which I paſſed ſo frequently, that I muſt have ſeen if my yardman had given it any other food; and for a fortnight before it was killed, it was fed with boiled potatoes, with the proportion of a quarter of a peck

of

of barley-meal to a pail-full; and it was ſuch meat as I was not aſhamed of ſending a quarter of to Dr. Lettſom, which no food could have made it in a fortnight, if it had been ſtarved for ſix weeks before: but the chief of my crop I packed in a dry ditch, as I then did my potatoes, and removed them at the ſame time in the ſpring into a barn, and covered them with ſome ſtraw, which kept them perfectly good till thoſe of the following year were large enough to begin to uſe. In the year 1790, I ſowed at different times and places about three acres, the chief of which was ſown late in May, and ſome in June, on light land, which had been exhauſted by my predeceſſor; but manured by me as the reſt of the ſhift was for turnips. The land being in an open field at the meeting of three roads, I wiſhed to ſhew my neighbours that it might be fed on the ground: what was ſown before the firſt week in May, had ſeveral plants run to ſeed; but nevertheleſs, it ſurpriſed every body to ſee how long it kept my cows. What was ſown late acquired but little bulk, and the crown of very few of them roſe from the ground. My cows certainly picked up too much dirt with theſe, which were fed in very wet weather; and whether from the dirt or the luſcioufneſs of the roots, two of my cows frequently dropped down ſuddenly, and when they were bled, their blood was very black; nevertheleſs, my dairy-maid complained that the cows did

did not give ſo much milk when they began to eat turnips which were drawn into a clean ſainfoin field. The ſuperior ſweetneſs of the cream and butter, when the cows are fed on Mangel-Wurzel, makes my family grudge every root which is applied to any other purpoſe; and the ſame cows were affected in the ſame way, after they had been at turnips ſix weeks. In the year 1791, I ſowed about two acres on the adjoining ſhift in the open field, and about one acre in a home-ſtall incloſure.

The autumn proving dry, graſs was ſcarce, and the ſituation enabling me to get a cart within reach, without driving over the roots, I found great benefit from ſtripping off the *fading* (not dead, nor growing) leaves, which upon many of the roots was, I think, repeated three times. One feeble old woman gathered as many in a day, as nine cows could eat in the night. If it rained in the morning, ſhe had a girl to help her in the afternoon; and for Sundays, and when weather or other avocations prevented her, a man preſently drew as many roots as anſwered the ſame purpoſe. Theſe roots were larger, and of courſe cleaner, than the late ſown ones of the preceding year; and being drawn into a clean graſs field, I heard nothing of giddineſs. I had about ſix acres of potatoes in the open field adjoining, which were at leaſt as well manured as thoſe of the Mangel-Wurzel: when I had packed them both in the ſame way, I found more than

double

double the quantity of Mangel-Wurzel from the two acres (beſides the drafts which had been made from them) that I had of potatoes from the ſix acres.

My mode of packing them, was by drawing two furrows with a plough at four feet aſunder; the mould from between which I threw to each ſide, to form two little banks, which ſtopt the cart wheels in backing, to ſhoot the loads alternately on each ſide, and a little help trimmed them into the form of a roof, which I covered with a little ſtraw, and then with mould above a foot thick. This preſerved them perfectly, except a few which were packed in a wet day, and which were mouldy on their outſides, and ſome few rotten. And I had the ſatisfaction to exhibit, to as many of my neighbours as I could collect on the 17th of April, that my cows (which had been ſo greedy of graſs, that the boy who drove them from the turnip-piece, which they had finiſhed that morning, could not keep them from the hedges) on being turned into a piece of fine freſh rye-graſs, on which two barrows full of Mangel-Wurzel, and as many potatoes were thrown, did not eat the graſs till they were were both finiſhed. My yard-man began by allowing eight cows five barrows of Mangel-Wurzel a day, weighing about 140lb. each, and no potatoes; this he found more than ſufficient; and as he was deſirous of all the Mangel-Wurzel he could get for the ſwine, (which abſolutely left potatoes untouched for two

days

days after they had been uſed to Mangel-Wurzel) he reduced the eight cows' daily allowance to two barrows-full of each, and their preference to Mangel-Wurzel was evident; they were houſed in the nights, (as my cows always are till they go to graſs) and had generally ſome of my worſt hay, chiefly the ſtalks from which ſainfoin ſeed had been threſhed, but were racked with ſtraw when I could ſpare it. The graſs they ate could not be placed to much account, as the ſpace they were folded on was leſs than an acre, which I increaſed a little at a time, as it became neceſſary, to give them the roots clear of their dung.

My crop of 1792, I ſowed as I had done that of 1791, with Cooke's patent Drilling Machine, to enable me to hoe between the rows before the plants were large enough to ſingle out, by which I had ſaved the chief of my crop of 1791; and as the ſeed is yet at a price to make ſparing it an object, I wiſhed to try how little would do, and uſed funnels of a ſize to receive the ſeed from two boxes, and ſow it in drills 22 inches aſunder. Having been told that the cups he had calculated for this ſeed were ſo deep and narrow, that the ſeeds ſtuck in them, I filled all the wheat cups but three, at equal diſtances in each box, quite full of wax, and put a patch of paper over each to keep the ſeed from ſticking, in caſe the ſun ſhould ſoften it; and theſe I filled ſo nearly full as to leave only a ſemi-

circular

circular edge, like the paring of a nail, to catch the ſeed, which I think ſowed about 4lb. an acre; 3lb. equally diſtributed would, I think, be quite enough. Had I had a leſs expert workman, my crop would have been better; he had acquired great credit by the ſtraightneſs of his drills in my other crops, and could not ſacrifice it to my requeſt in this: for I obſerved to him, that when he held the coulter beam to either ſide, to correct the boy's errors in leading the horſe, the ſeeds hung in the pieces of canvaſs, which join the pipes to the funnels; this left ſome ſpaces unſown, and dropped too many ſeeds together in others. I had been adviſed to bury the ſeed a month before I uſed it in damp ſand; but not having covered it ſufficiently, I found that in a few days it was all ſprouting, which obliged me to haſten my ſowing it, and prevented my attention to ſome remarks I intended to have made upon ſeed from different places. The planting ſome to fill the vacancies occaſioned by the ſeed ſticking in the canvaſſes, increaſed the expence, placed to the account of hoeing, which the wetneſs of the ſeaſon rendered much greater than uſual, eſpecially as I did it chiefly by women, who ran home for every ſhower, and ſtaid there if they ſaw a cloud; and I had near two acres ſpoiled by not being able to get them hoed in time; yet my principal crop of three acres on a good ſoil, but very near the chalk, has amply repaid me even by the

leaves

leaves, which I gathered only once, and fed all my cows and calves with them in an adjoining graſs cloſe, as I packed the roots, which I began to do by piling them againſt the back of a new-dreſſed fence, and covering them with mould. This I ſhall continue to practiſe for a few, to be able to get at them in a froſt; but I think I have packed the reſt in the cheapeſt and beſt way I am likely to find. When I had gathered all the leaves clear off from ſix drills, I ploughed up one of the middle ones, and returning with the plough, turned another furrow to the oppoſite ſide: this formed a trench, into which women and children threw the ſix rows of roots, and the plough turned the mould back over them and formed the tops of ridges, far enough aſunder to let a cart go between, and from which I expect to turn the roots out by the plough as I do my potatoe crops; and ſhould I chuſe to feed them on the ground, I can do it without hurdles, by ploughing up no more at a time than I want.

Another piece, the chief of which was ſpoiled for want of being hoed in time, I drew the beſt of for my cows, and fed my calves on the ground with the reſt; and one of them was taken giddy, as two cows had been in 1790. Another of my calves was affected in the ſame way a few days ago, which has been at turnips many weeks; which ſeems to wipe off the ſuſpicion from the Mangel-Wurzel. But ſhould the fact be proved, that its juices are

too

too rich to be uſed too freely, it will amount to no more than ſaying that horſes ſhould not be fed with too much corn. As I am its ſincere advocate, I wiſh to advance every thing I am aware of in its diſfavour; and although I am perſuaded that its ſaccharine juices are very nouriſhing, I think the root ſeems to want that pungency which ſtrikes my palate in the rinds of turnips, and abounds in cabbages, eſpecially the red ſort, and which I conceive to be neceſſary to warm the ſtomachs of animals in the depth of winter. This ſeems corroborated by ſprouted potatoes, which, when ſo rank that we cannot eat them, are found moſt valuable for cattle.

But a gentleman who was very partial to Mangel-Wurzel in this neighbourhood, and who is removed to a very ſtiff ſoil in Suffolk, tells me that the ſwine and cattle, which had been fond of it here, refuſed it there; and that when he taſted it, it bit his tongue like a ſtrong radiſh. I admit, that I find a roughneſs in the leaves, which prevents my preferring it to ſpinach, as many people do; but this ſeems ſo far from being diſagreeable to my cattle, that when they have accidentally broke their fold, they have preferred the leaves to the roots, or to turnips which have been adjoining. Many people are deterred from trying this root, upon being told it cannot be relied upon to reſiſt a ſevere froſt uncovered, which I do not deny, as far as they are out of the ground; but I have found all below the

ſurface

ſurface perfectly ſound, late in the ſpring, whenever froſt, or hares, &c. have taken off all that was above, which led me at firſt to prefer thoſe with crowns cloſe to the ground; but this is no conſideration, compared with the cleanneſs of thoſe which riſe above the ſurface, eſpecially if they are fed on the ground, which I expect they will be, when their culture is better underſtood; at leaſt, inſtead of ſuch turnips as are fed off in time to ſow wheat. And as far as this tends to prevent the quick return of turnip crops to the ſoil, it will give the ſucceeding ones a better chance; and their being earlier ſown and hoed will contribute to employ pariſhioners, at a time that many want work, and prevent the great hurry and conſequent high wages to ſtrangers at the time of hoeing turnips, which often interferes with harveſt. My partiality to theſe roots, which ſeem exempt from the evils of the fly, the mildew, the caterpillars, &c. may lead me to under-rate the expence of ploughing them in, and to overvalue the certainty of being able to preſerve them good through the ſummer, if they are not wanted ſooner; but almoſt every year's experience ſhews the inconvenience of being overſtocked either with mouths or with turnips in the ſpring: and I have not found it accidental, but conſtant, that almoſt all the roots from which I have gathered the ſeed, remain good food for my ſwine: this is no great conſideration, farther than that it proves they

may

may be preſerved for uſe to ſo late a period, by only laying them on the ground in a ſtack-yard, or any odd corner.

Their fattening quality has, I believe, been proved upon a large ſcale. I have been convinced of it, by every thing I have given it to; but can only ſpeak to having killed one heifer, fattened intirely with that in the days, and hay by nights. This beaſt, for a particular reaſon, I was obliged to dry, and as ſoon as ſhe was dry I tied her up, which was on the 15th of laſt October; and the butcher ſaid, whenever I killed her, he could only allow me the price of cow beef for her: he killed her on the 7th of December, and without my ſaying any thing to him, he allowed me 4s. 6d. a ſtone, (the beſt price of beef at the time here) the meat was ſo remarkably ſweet, that he obſerved it to me as ſoon as he had taſted it, and when I ſent for the beſt piece he had left to make a preſent of, after what was wanted for my own family had been ordered, he requeſted me to ſpare him as much as I could for his other cuſtomers: had I known ſooner how good it would prove, I ſhould have diſtributed more of it to my friends.

But were the whole utility of Mangel-Wurzel reduced to feeding ſwine, it would ſtill be very valuable. My yardman aſſures me that a brawn I killed this winter, had lived wholly upon it, till within a few days of its being killed—for which

time

time it had had peas; but having rooted up the pavement of his ſtye, he waſted ſo many, that I ordered him to be killed before he could have received any material benefit from the peas. I had one quarter collared for a trial, and had it been boiled enough, it would have been as good as any I ever bought. I made hams of the legs, and ſold the remainder to my labourers, at half the current price of pork; and they all declared they never ate ſweeter meat, and did not wiſh it fatter. Were it practicable to fold pigs like ſheep, and compel them to depoſit their dung regularly, I am convinced that feeding it on the ground by them, would enrich the land to a very high degree; although I think they exhauſt the ſoil more than turnips, if they are not fed upon the ground; but the richneſs they add to the muck in the farm-yard, by the ſwine or cattle eating them, muſt be ultimately felt in the farm, although its value cannot be exactly ſtated.

The ſituation of my farm does not make it convenient to me to keep ſheep, or I would have fed ſome with it on the ground this year. I ſhould only fear its being too rich for ewes in lamb. I know it is very valuable for weaned lambs, at a time when in a dry ſummer the farmers are often diſtreſſed what to do with them.

As to the culture of Mangel-Wurzel, the beſt time for ſowing the ſeed muſt depend upon the weather:

weather: it cannot be more precarious than that of turnips, in which it often happens, that the morning or afternoon makes the difference of a good or a bad crop. The beginning or middle of May ſeems the moſt deſirable time, which is as early as convenient after barley ſowing.

Such a preparation of the ſeed as may make it grow faſter than the ſeeds of weeds latent in the ground, ſeems neceſſary to facilitate their firſt hoeing, which at beſt is troubleſome, as the plants grow ſlow while young; and there are two or three ſeeds in every little lump, which cannot be ſeparated till the plants are ſtrong enough to ſtand againſt the hoe, which they will be at the ſecond hoeing.

The moſt rational means of forwarding the growth of the ſeed ſeems to be to bury it too deep to vegetate, which is the ſtate the ſeeds of thoſe weeds are in, which grow as ſoon as they are brought within the influence of the air. For if they are ſprouted before they are ſown, and a few dry days ſhould follow, they would probably periſh. In this caſe I think it would be adviſable to ſow them deeper than I ſhould otherwiſe wiſh; for I have had many young plants appear the ſecond year, which I have attributed to the ſeed having been buried too deep the firſt. And I think the ſeed being near the ſurface, contributes to make the roots riſe above ground, which now ſtrikes me as

the purpoſe for which the Abbé de Commerelle recommends "removing the mould from the roots with mattocks" (probably a kind of hoe:) this I never tried. It appears an alarming expence, but in a ſituation where women and children are glad of employment, might not prove tremendous, as I do not wiſh the plants to be left cloſer in the rows at the ſecond hoeing than the drills are. I think 22 inches is the wideſt that Cooke's machine is calculated for; on land in good heart, I ſhould prefer two feet, as one large root is leſs trouble, and more profit, than many ſmall ones.

May I be allowed to ſuppoſe that from the ſize of the leaves imbibing more moiſture from the atmoſphere, and the roots ſtriking deeper in the ground, they are likely to draw leſs from the ſurface of the ſoil?

I am, Sir, your humble ſervant,

MORDAUNT MARTIN.

Burnham, Norfolk,
Feb. 11, 1793.

Article VII.

On the Field Culture of Potatoes.

SIR,

THE encouragement you give me to continue to communicate to you any agricultural matters which may occur, leads me to ſend you the incloſed little model, which (rough as it is) will convey a clearer idea of the machine it is meant to repreſent, than I can do by drawing.

In my endeavours (which have been more zealous than ſucceſsful) to introduce the culture of potatoes into the field huſbandry of this neighbourhood, my firſt object was to reduce the expence in procuring the crop as low as poſſible. In this point I have ſo far ſucceeded, as to have proved that no other inſtruments than the common ploughs and harrows of the country are required for preparing, cleaning, earthing up, and taking up the crop, except once hoeing between the ſtalks in the rows, which included (even as I have done it by paying women for time inſtead of meaſure) has coſt leſs than my neighbours or even myſelf expected; but the dryneſs and ſhallow ſtaple of the ſoil here is ſo ill-ſuited to the growth of them, (eſpecially in dry ſeaſons) that I have reluctantly abandoned the purſuit, in the courſe of which, I wiſhed to invent ſomething to raiſe the potatoes as generally as poſſi-

ble to the ſurface in ploughing them up. In one purſuit I think I have gained another point, for although I have buried as many potatoes as I raiſed by it, my ploughman was ſtruck with its probable utility in wet land, by harrowing it with very little addition to the labour of ploughing, and without any treading upon it for that purpoſe.

The technical terms of the different parts of a plough of this country would probably not apply to the inſtruments of others; but I think you will conceive by the model, that the pin at the point keeps it from ſlipping backwards, and that a croſs-bar of iron, which is here called the foot-pin, on which the plough-ſtick reſts, holds this little harrow in its place, ſo that the teeth paſs ſteadily through the mould as it is upon the turn, and break the clods by their own weight more effectually in this ſtate than any machine, which muſt preſs them down, would perhaps be able to do at a future period, and could not leave the land ſo light as this does.

My ploughman obſerved that it made the plough draw a little to land; the teeth of mine were made round to avoid injuring the potatoes, but were they to be made in the form of coulters, and ſet with the points forwarder, I apprehend they would not only paſs eaſier through the mould, but might be ſet ſo as to act in the nature of rudders, and contribute to keep the plough ſtraight.

Perhaps

Perhaps I am communicating an idea, which may have been brought to much greater perfection by ſome machine I have never ſeen; I can only ſay it cannot be done by a cheaper, as mine was planned and conſtructed in leſs than an hour.

I am, Sir,

Your obedient humble ſervant,

MORDAUNT MARTIN.

Burnham, Norfolk, March 11, 1793.

Article VIII.

On the Poors Rates.

[TO THE SECRETARY.]

SIR,

IT is impoſſible to read your excellent diſcuſſion of the ſubject of the care of the poor, without wiſhing to know, and be known by the writer.

I am not likely ever to have your perſonal acquaintance; but the valuable inſtitution of the poſt furniſhes me an opportunity of another mode of converſing with you.*

Not

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* The Secretary of the Bath and Weſt of England Society, cannot comply with the requiſition of the committee in bringing this letter

Not to aſſume any merit in what I have felt by being witneſs to ſome inſtances of tyranny towards miſerable objects, which the laws of this free country fix to a ſpot as effectually as a dog is chained to his kennel; you will admit me to have ſome feeling on another ſcore, which is, that a conſiderable portion of my little property pays near ten ſhillings in the pound to the poor's rate. My opportunities of information of the different plans which have been propoſed to reduce it, have been very confined; but I have given my utmoſt attention to every converſation I have heard on the ſubject.

An obſervation from a very ſenſible man (the late Sir John Turner) many years ago, made a deep impreſſion on my mind. He ridiculed the idea of the poor's rates being originally intended for the comfort of the paupers; their primary object being to fix the labourers to their pariſhes; and I think we muſt admit, that where they are enforced by intereſted perſons, they are calculated to anſwer the end with a vengeance!

That the object is highly deſirable, nay, abſolutely neceſſary, I not only admit, but maintain.

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letter in the arrangement for the preſent volume, without expreſſing his particular happineſs that his ſentiments in the laſt volume, on the very intereſting queſtion relative to the Poor Laws, has met the approbation of Sir Mordaunt Martin, whoſe correſpondence and friendſhip he cannot but eſteem both a pleaſure and an honour.

But

But can it be obtained by no means but arbitrary compulſion? This has been the point to which I have directed my thoughts. How far I may have ſucceeded in my purſuit, you will be enabled to judge by the incloſed paper. The purport of which I communicated, in the year 1788, to a noble friend of mine, who was well pleaſed with it, and who, "after conſulting ſome ſenſible people," thought it worth putting into the hands of Mr. Wilberforce, who was ſo kind as to keep it ſome time to ſhew to Mr. Pitt at his leiſure; but returned it during the King's illneſs, without ſpecifying any particular objection, but "that it did not upon the whole appear to Mr. Pitt proper to be adopted." My noble friend complimented me with keeping the paper, in caſe of a future opportunity of bringing forward any parts of it.

I have long intended to ſubmit my ſcheme to the diſcuſſion of the Bath Society, my reſpectable friend [Dr. Lettſom] having given me his opinion that adopting it would annihilate the poor's rates in ſixty years. That it muſt do it, ultimately, ſeems evident. The time muſt depend on the ſums collected. The period of the ſociety's publiſhing another volume being at a diſtance, and wiſhing to put my thoughts in the beſt light I could, have made me, perhaps, too tardy in ſending them to you; but an unexpected opportunity has ariſen of putting my ſcheme in a fair way of being reviſed

by

by miniſtry in its preſent form, ſomewhat altered, and I hope improved, by the ſuggeſtions of different friends, and five years additional thought on the ſubject; but in a far leſs perfect ſtate than it would have acquired, could I have firſt obtained the candid inveſtigation of its defects, (which my confined experience prevents my being aware of) and the valuable additions, which I have no doubt it will acquire, ſhould it be deemed worthy the attention of a committee of the ſociety, which I feel truly proud of calling ours.

I am, Sir,

Your obedient ſervant,

MORDAUNT MARTIN.

Burnham, Norfolk, Aug. 10, 1793.

Outlines of a Scheme to alleviate the very unequal burthen of Poor's Rates, and to anſwer ſeveral other deſirable purpoſes.

WHEREAS it is a common practice to take a ſum of money from the father of a baſtard, which contributes to lower the rates for that year, and leaves an increaſed permanent charge upon the pariſh, it is propoſed to eſtabliſh an office to receive theſe ſums and all others, which it may be found expedient to allot to *an increaſing fund:* Such as the penalties already directed by law, to be paid to the poor of the pariſh. Thoſe inflicted by magiſtrates for treſpaſſes, &c. That upon burying in any thing but woollen; to which might be added one upon being regiſtered on becoming a pariſhioner, by any other

other means than birth or marriage. And an exemption to every perſon who ſhould pay a halfpenny a day to it, from being removable, till they ſhould become actually chargeable.

Were employers to be made reſponſible for a halfpenny a day (or more in proportion to wages) for all labourers and workmen not belonging to the pariſh, and liable to pay double for neglect, with a reward to informers, it would induce occupiers of land to encourage perſons to become pariſhioners, inſtead of their preſent endeavours to depopulate the country; the effects of which were ſeverely felt in many places by the quantity of corn ſpoiled, and the exorbitant wages paid in the harveſt of 1792.

Payments to be made to the pariſh in which the maſter ſhould reſide, who ſhould employ perſons to work for him in others; this would avoid diſputes, and be ſome compenſation for the number of perſons (uſeleſs to agriculture) who are fixed on country pariſhes by apprenticeſhip, and ſervice, to thoſe who pay very little to the rates.

Monthly or weekly returns to be made to the overſeers of ſtrangers employed, and the wages they earned, and the money to be paid quarterly. The capital to be veſted on ſimilar ſecurities to the property of Wards in Chancery.

The intereſt to be remitted to the Clerks of the Peace, who ſhould at the Quarter-Seſſions receive the principal ſums collected by the pariſh officers, and pay them the preceding intereſt due. To be diſburſed under the ſame limitations as the poor's rates are, before any rate ſhould be levied in the reſpective pariſhes.

The accounts to be exhibited at all veſtry meetings, and to the magiſtrates acting for each diſtrict. Whenever it ſhall appear that the overſeers of any pariſh ſhall have more than one year's intereſt in hand, ſuch ſurplus to be paid to the county rate.

And when any pariſh ſhall have contributed to the county rate for a ſpecified number of years, ſuch pariſh to be entitled to draw for a certain portion of its capital to repair the church, or be applied to any other work which ſhould be recommended by ſuch pariſhioners as ſhould pay two-thirds of the rates, and be approved by the majority of magiſtrates, who ſhould have acted a ſpecified time for the diſtrict; ſhould their numbers be equal, the one who ſhould have acted longeſt for the diſtrict, to have the caſting vote.

MORDAUNT MARTIN.

Addition to Sir Mordaunt Martin's Scheme to alleviate the Poor's Rates, &c.

It is a common complaint, that the lower claſs of people ſeldom ſave any thing in youth, to prevent their becoming burthenſome to their pariſhes in age.

I know three inſtances to the contrary, within a ſtone's throw of my door. Two of them lent their money to neighbours, who became inſolvent. The third bought cottages, and lives comfortably in one of them, as he now works conſtantly with me. But the laſt time I had no employment for him, he was many weeks (I think thirteen) without a day's work, becauſe the farmers knew he could not claim relief from the pariſh, while he lived under his own roof.

In an adjoining pariſh (North-Creak) I am told there have been two attempts made to eſtabliſh a Box Club, but from heavy charges in the outſet, they have both been bankrupt.

Are not theſe diſheartening circumſtances, to men who muſt pinch themſelves hard indeed, to ſave what they have ſo little proſpect of enjoying any comfort from?

Could not agents be appointed (in the firſt inſtance) by ſuch perſons as pay two-thirds of the poor's rates in every pariſh, (or larger diſtrict as might be found convenient) who ſhould find ſureties in proportion to the money that would paſs through their hands? In receiving quarterly, ſuch ſums as each individual of the diſtrict ſhould bring to him to be remitted to the office in London, propoſed by Sir M. Martin, to alleviate the poor's rates, &c. to be inveſted in the name of the diſtrict in a collective fund, from all the diſtricts in the kingdom, on ſimilar ſecurities to the property of Wards in Chancery? Such intereſt, as ſhould be deemed by the inſpectors of the office appointed by parliament a proper dividend, to be remitted, at ſtated periods, to the agents of each diſtrict, to pay to individuals in proportion to their capital, deducting from the whole ſuch a poundage as ſhould be fixed to pay them for their trouble.

The ſum to be ſubſcribed by each perſon at one time, not to exceed what ſhould be limited, to prevent the wealthy crouding in large ſums to gain influence, and lower the dividends to thoſe for whoſe benefit the ſcheme is propoſed.

Every perſon to have a power of transferring his ſtock, upon quitting a pariſh, to any other actual pariſhioner. And of bequeathing

queathing it at his death with as little expence as poſſible, and his heirs to be allowed to receive it within a limited time, with as little trouble as poſſible. Many lapſes would probably happen, and the fractions in the intereſt, which would not divide to a quarter per cent. at each payment, being veſted as capital for the benefit of each pariſh, would ſoon raiſe the intereſt to individuals higher than that paid for the groſs ſum; and no perſon being admitted to ſubſcribe to the fund of any pariſh, in which he had not been regiſtered as a pariſhioner, would contribute to fix people to pariſhes, and to increaſe the fund for the relief of the poor, &c. and when the fund of any diſtrict ſhould amount to a certain proportion of the property, aſſeſſed to the poor's rates, then ſuch of the contributors as ſhould ſubſcribe two-thirds of the money, ſhould elect their own agent, who ſhould find the ſame proportionable ſureties as before. The agents of each diſtrict to make returns at ſtated periods, to the office in London, of the groſs amount of capital, which would be called for at the following period. And the broker of the office ſhould (under the direction of the inſpectors) againſt that time, ſell out of the publick funds, or call in ſuch ſums from ſecurities, as ſhould produce the higheſt proportion of capital, to be remitted to the agents of diſtricts, to divide in proportion to individuals; and any remaining fractions to go to the capital of the diſtrict.

Article IX.

Remarks on Mr. Pew's Obſervations on the Poor's Laws.

SIR,

IN the letter incloſing my ſcheme to alleviate the Poor's Rates, I purpoſely avoided entering upon the remarks which occurred to me, in reading Mr. Pew's "Twenty Minutes Obſervations, &c." and your judicious preliminary and ſubſequent conſiderations.

derations. Permit me now to addreſs you in your private capacity, and follow my pencil marks as I find them in the margin; and ſhould I be ſo fortunate as to ſtate any part of the ſubject, in a point of view which you may think worth communicating to the ſociety, to requeſt you to lay it before them.

In page 217, you ſay "ſome have held forth the neceſſity of large buildings, &c." I flatter myſelf we do not think widely different on this ſubject; to ſhew you my opinion, I incloſe you a copy of an anonymous letter I ſent many years ago to the Norwich newſpaper, but which was never inſerted.—"One inconvenience which the cottagers in the "neighbourhood of theſe great houſes experience, is, that "the ſpinning maſters find it ſo much eaſier to collect their "work at them, than by going a long round for it, that "they are unwilling to ſupply the cottagers with work. "On the other hand, the horrid filth in which too many "of the infirm and aged exiſt, in *their* miſerable dwellings, "in which the different ages and ſexes are crowded together, "is certainly a crying evil."

But miſerable as it appears, it is an Engliſh proverb, which ſays "home is home, be it ever ſo homely;" and I feel a pride in being told that *home* is not expreſſed by one word in any language but our own: may I not hope, that in time the ſurplus of the increaſing fund, which I recommend, may be applied to providing *more comfortable homes* for many!

In page 221, Mr. Pew ſays, "being too much the cuſtom "with them (ultimately certain of pariſh relief) to ſquander "immediately all they get, be it little or much:" I believe it will be generally admitted, that thoſe who earn moſt, ſquander moſt. May not the evil be often traced to *taken-work?*

which

which people agree to, to ſave themſelves the trouble of watching their workmen: the conſequence is, the work is ill done, the workmen boaſt at the ale-houſe what they can ſpend in "a waſte againſt the wall," and make men at moderate wages diſcontented. On the little land I occupy, I endeavour to keep my number of men, as conſtantly as my number of horſes: they muſt both be fed, and are both better kept always moderately employed, than hard worked at one time and idle at another. My men hoe my turnips at 9s. a week by the day. An active farmer here tells me, his men are grumbling at earning 18s. a week by the acre, becauſe his neighbour's men have boaſted of earning 25s. Their work, you muſt ſuppoſe, to be done accordingly. If my work does coſt me more per acre, I know the worſt of it: no man can calculate what he loſes by not cleaning his ground. I am aſſured that one man of this town can earn 5s. a day in the ſpring, by cutting ſtraw: he is an exception to the general rule, for he is a thrifty man, although I ſee him oftener unemployed than any other man; but notwithſtanding he is an excellent workman, I never dare employ him, as I ſhould ſet all my preſent men a grumbling, men who are now peaceable, becauſe they rely upon me for *conſtant work*. I ſet them all to cutting hay, when the weather prevents their doing any thing elſe: if they do it ſlow at firſt, they generally ſeem to feel themſelves obliged to me for my patience, and although I have met with ſome inſtances of ingratitude, I muſt ſay that in general they find out who is their true friend. If I threſhed by meaſure, I ſhould not have the opportunity of turning my hedgers, &c. into the barn in a froſt, and they would naturally reſort to the ale-houſe.

Hand-mills, and every invention for work which can be done in bad weather within doors, have no ſmall merit in promoting

promoting the very deſirable end of *conſtant employment*, which will, I believe, be generally found the moſt effectual means of preventing the occaſion of Mr. Pew's parentheſis, ("ultimately certain of pariſh relief.") I admit that my plan of forming a permanent fund for each pariſh does not ſeem calculated to remove the evil Mr. Pew complains of in this parentheſis; but my plan does not propoſe to diſtribute the intereſt of that fund under leſs rigorous reſtrictions than the poor's rates are; and when one conſiders that paupers cannot be legally relieved, till the pariſh officers have taken their bed from under them, it is no diſcouragement to friendly ſocieties, nor any great encouragement to ſquandering.

The uſe of the badge is ſo obvious, that it ſeems ſtrange it is not oftener adopted: it was once tried in this pariſh, and reduced the rates conſiderably; but the initials happening to be the ſame with thoſe of the magiſtrate's name, they called it his brand, and he did not perſevere in it; and till the hope of gaining popularity can be expunged from the few inducements which generally engage gentlemen in the troubleſome, unprofitable, and often invidious office of magiſtrates, perhaps this unpopular meaſure will not be generally enforced.

Every man I employ, but one, is as ſprucely dreſſed on a Sunday, as I wiſh to ſee them: the exception is a man near 70, who has been remarkably expert at moſt kinds of work, and when I firſt employed him, was the only man here who could plaſh a hedge; he has been uſed to *taken-work*, and earned more than his neighbours, and retains his old cuſtom of ſpending half what he earns in the week at the ale-houſe on Sunday; and if it has been too much to get through on that day, he would always finiſh the *laudable work* before he would begin any other on the Monday! Would magiſtrates

refuſe

refuſe licences to ale-houſe-keepers who harbour ſuch men, it might at leaſt drive them to brewing at home, and their families would get the ſmall beer.

My next remark is in the ſame page, that the chief dearth of work here, is, after barley is ſown, till hay-cutting and turnip-hoeing come in; this argues in favour of ſowing Mangel-Wurzel, of manuring the land for turnips, in preference to that for wheat, and of hand-hoeing drilled crops.

In page 223, Mr. Pew propoſes "to compel them, if poſſible, to lay up ſomething, &c." Could it be contrived to give ſatisfactory ſecurity for the principal, and pay every one regularly the intereſt of their own ſavings, leaving them the power of bequeathing the capital at their death, this would ſecure them the attention of their kindred in old age.

In page 225, it appears that 1s. 10d. per ann. has ſufficed in that inſtance to ſupport the laudable inſtitution, from which the ſubſcriber had a claim to 6s. a week for the firſt ſix months of illneſs, and 3s. afterwards, with a proviſion for his funeral. Who can withhold his admiration of ſo wiſe a meaſure?—I ſhould be happy to enter into an aſſociation of the kind, on a larger ſcale. Mr. Pew's ſociety I ſuppoſe to have been of the lower claſs of tradeſmen, who had ſome pride in not applying to the club; but does it not frequently happen to clubs of mere labourers, that a heavy charge in the outſet renders their fund bankrupt, to ſay nothing of the frequent frauds of their ſtewards?—And as no earthly good is without an attendant evil, I muſt obſerve the annual inconvenience I experience on the day of the anniverſary dinner; on the laſt the care of every thing about my farm devolved upon one boy. My men did indeed come home ſober; but when a number get together, the odds are againſt them.

The

The attendance upon the funerals of members is a token of reſpect, which has the good effect of alluring many to become ſubſcribers; but the taking one man from a ſet, in a buſy time, often throws a farmer back in his work, to the eventual loſs of many pounds. I am the more ſenſible of this, by employing the pariſh clerk, whom none of the farmers will employ, *becauſe he has been ſo raſh as to ſave a little money to keep him from the pariſh.**

In page 240, you recommend "employing in preference." Does not this lead to leaving vicious men unemployed? And is not that the ſureſt ſource of evil?

In page 246, you recommend little publick breweries of ſmall beer: are there not ſome difficulties about the duty? And would not adulteration creep into a brewery of that for ſale in proportion, as it is thought to do in ſtrong?

A brazier in this town lets his neighbours uſe his brewing veſſels for leaving the grains: this enables many to brew who could not purchaſe veſſels, and you may truſt them for getting all the good they can out of the malt, which by the by is ſo little underſtood, as to leave room for a premium from the ſociety.

Sir, your obedient ſervant,

MORDAUNT MARTIN.

Burnham, Norfolk, Auguſt 14, 1793.

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* May not their reluctance to employing him, ariſe in ſome degree from the inconvenience of Sir Mordaunt complains of—his being frequently liable to be called from his labour?

Article VII.

Extract from a general View of the Agriculture of the County of Wilts; *with Obſervations on the Means of its Improvement; drawn up for the conſideration of the Board of Agriculture and Internal Improvement.*

[By Thomas Davis, of Longleat, Wilts, Steward to the Moſt Hon. the Marquis of Bath.]

General description of the county.

THE county of Wilts is, in ſhape, approaching to oval, having its tranſverſe or longeſt diameter nearly North and South.

It is about fifty-four miles in length, and thirty-four in greateſt breadth, and contains about one thouſand three hundred and ſeventy-two ſquare miles, or eight hundred and ſeventy-eight thouſand acres.

There is a very ſtriking difference in the external appearance of the ſouth-eaſt and north-weſt ſides of this county, the former being compoſed of a broken maſs of chalk hills, which enter the county from Berkſhire, Hampſhire, and Dorſetſhire, and terminate in an irregular line of bold breaks and disjointed maſſes, running from the north-eaſt to the ſouth-weſt ſide of the county; and the latter being chiefly compoſed of a rich tract of vale land,

ſtretching from north-eaſt and ſouth-weſt through the county, under the foot of thoſe hills, but riſing gradually north-weſt till it joins the high lands of Gloceſterſhire.

DIVISIONS OF THE COUNTY.

In ſpeaking of this county, it is uſual to ſeparate it into two diſtricts, viz.—South Wiltſhire and North Wiltſhire; and the diviſion is generally made, by ſuppoſing an eaſt and weſt line paſſing through the county at or near Devizes, thereby leaving *Marlborough-Downs* in *North Wiltſhire*; but in treating of the county *agriculturally*, it will make a more natural diviſion to draw an irregular line *round the foot of the chalk hills*, from their entrance into the north-eaſt part of the county from Berkſhire, to their ſouth-weſt termination at Maiden-Bradley, thereby comprehending *the whole of Wiltſhire Downs*, with their interſecting vallies and ſurrounding verges, under the name of "South Wiltſhire," or, perhaps more properly ſpeaking, "South-eaſt Wiltſhire," and calling the reſidue of the county "North Wiltſhire," or, more properly, "North-weſt Wiltſhire."

The natural appearance, as well as the agricultural application of the two parts of the county, well warrant this diviſion into South-eaſt and North-weſt

weſt Wiltſhire, the firſt comprehending the chalk-hills, uſually called Wiltſhire Downs, whoſe general application is to corn-huſbandry and ſheep-walks; and the latter being remarkable for its rich paſture-land on the banks of the Lower Avon and the Thames, ſo famous for the feeding of cattle, and ſtill more ſo, for the production of one of the moſt excellent kinds of cheeſe this iſland can boaſt.

As the difference in the ſoil, ſituation, and productions of the two diſtricts is ſo very great, it will be neceſſary, after premiſing ſome general remarks on the whole county with reſpect to its property, to treat of them as two diſtinct and ſeparate diſtricts.

GENERAL STATE OF PROPERTY.

The greater part of this county was, formerly, and at no very remote period, in the hands of great proprietors. Almoſt every manor had its reſident lord, who held part of the lands in demeſne, and granted out the reſt by copy or leaſe to under-tenants, uſually for three lives, renewable. A ſtate of commonage, and particularly of open common fields, was peculiarly favourable to this tenure.

Incloſures naturally tend to its extinction.

The North-weſt part of Wiltſhire being much better adapted to incloſures, and to ſubdiviſion of property, than the ſouth, was incloſed firſt; while

the South-eaſt or Down diſtrict, for many reaſons that will hereafter be given, has undergone few incloſures, and ſtill fewer ſubdiviſions; and during the ſame period that a great deal of the property of the former diſtrict has been divided and ſubdivided, and gone into the hands of the many; property in the latter diſtrict has been bought up by the great landholders, and it is now in fewer hands than it was in the laſt century.

There are undoubtedly many exceptions to this general remark, and there is in both diſtricts a great deal of property in mortmain, belonging to churches, colleges, ſchools, and other pious and public foundations, which neceſſarily remains in its original ſtate; but, generally ſpeaking, it may be ſaid, that a great part of the North-weſt diſtrict of the county is poſſeſſed by ſmall proprietors, and that by far the greateſt part of the South-eaſt diſtrict is the property of great landholders.

Reaſons will hereafter be adduced to ſhew, that this difference is the natural effect of a number of cauſes, immediately reſulting from the relative difference in the nature of the ſoil, and ſituation of the two diſtricts, and which effect muſt have been, and undoubtedly is, uniformly produced in all parts of the kingdom where the ſame cauſes exiſt.

I. SOUTH-EAST DISTRICT.

The diſtrict uſually called South Wiltſhire, but more properly South-eaſt Wiltſhire, comprehending that part of the county called Wiltſhire Downs, is divided into two principal ſubdiviſions, called Saliſbury Plain, and Marlborough Downs, and contains in all about ſeven hundred and eighty ſquare miles, or five hundred thouſand acres.

The diſtant appearance of the whole is that of a large elevated plain, but the ſurface is broken into numberleſs inequalities, and interſected by ſeveral deep vallies, formed by brooks or rivulets chiefly riſing within this diſtrict, and on which the villages, with very few exceptions, are ſituated.

The greateſt part of the ſprings which riſe in the part called Saliſbury Plain, run ſouthward or eaſtward, and joining at or near Saliſbury, near the ſouth-eaſt corner of the county, make the river called the Wiltſhire or Upper Avon. Thoſe which riſe in the part called Marlborough Downs, join near Marlborough, and make the river called the Kennet, which leaves the county at Hungerford, after receiving the ſtreams which riſe in the Bedwin Vale.

Soil. The ſoil of this diſtrict, though various, is in a certain degree uniform. The hills are chalk, with its uſual accompaniment of flint. The land on the ſide of the hills, from which the flints have been

been waſhed, is uſually a chalky loam, or, rather, a diſſolved chalk, (provincially called white land) the flatter parts are generally a flinty loam, and the center of the vallies, next the rivulets, is uſually a bed of broken flints, covered with the black earth waſhed from the hills above; and in ſome of theſe, there are veins of peat, formed by the black earth without any mixture of flints. And it neceſſarily follows, that thoſe parts near the ſource of the rivulets where the hills are the ſteepeſt, abound moſtly with the white land ſoil, and thoſe near the junction of the rivulets, where the country is of courſe flatteſt, abound moſtly with the flinty loam. The ſides of the hills which have been the moſt waſhed, are the thinneſt and weakeſt ſoil, and the level tops, which have been very little waſhed, or not waſhed at all, frequently the deepeſt and ſtrongeſt.

But there are ſome very ſingular ſand-veins, running through a large portion of this diſtrict, which deſerve particular notice. One very narrow, but very fertile vein, enters the county at Mere, on the borders of Dorſetſhire, and takes a north and north-eaſt direction round the outſide edge of the Downs, keeping nearly cloſe to their foot, by way of Maiden-Bradley, Warminſter, Weſtbury, and Lavington, towards Devizes, where it meets and unites with a much wider and ſtill more fertile vein, coming down the Pewſey Vale from Burbage.

Another

Another vein alſo enters the county from Dorſetſhire, being the continuation of the ſand-hill on which Shaftſbury ſtands, and paſſes through Donhead, Anſty, Swallowcliffe, Fovant, &c. under the foot of the Down, till it is ſtopped by the high ground in Burcomb Field. This vein is alſo met by another branch, or rather a ridge of ſand-hills, coming from Weſt-Knoyle by Stop-Beacon and Ridge, and joining the laſt-mentioned branch at or near Fovant.

There are ſome inſtances of ſtrong clays and clayey loams on the ſkirts of this diſtrict, but as they make no part of the corn and ſheep diviſion of the county; and the quantity of this land is ſmall, and its management is the ſame as that practiſed in ſimilar ſoils in North-Wiltſhire, it will be needleſs to ſay more of it here.

Theſe ſoils, with all their conſequent mixtures and variations, may be ſaid to conſtitute the far greater part of this diſtrict.

Climate. The climate of Wiltſhire Downs is ſo well known for its coldneſs and keenneſs, as to be almoſt proverbial. The height of the hills, and their expoſure to the ſouth-weſt wind, from the Briſtol and Britiſh Channels; the want of incloſures in the vallies, and the draught of air that neceſſarily follows the rivers, undoubtedly contribute to make this diſtrict healthy both for men and cattle; but the length of the winters conſequent to

ſuch

ſuch a ſituation, is certainly unfavourable to many of the purpoſes of agriculture.

STATE OF PROPERTY.

The regular diviſion of the manors in this diſtrict ſhews that a great number of them were originally in one hand, and that their diſpoſition was a matter of choice, and not of neceſſity or accident. The vallies of this diſtrict are (almoſt without an exception) interſected longitudinally by rivulets. The ſides of theſe rivulets, being the moſt eligible ſituation for building, became of courſe crowded with houſes as much as poſſible. Theſe vallies, with their accompanying rivulets, (provincially called bourns) are frequently from three to five miles apart, and hills intervene between bourn and bourn. The ſhape of manors, therefore, neceſſarily became a narrow oblong. It was neceſſary that each manor ſhould have water, ſhould have meadow ground, and ſhould have wood for fuel, (pit-coal being very little, if at all in uſe at that time.) The proper ſituation of the meadow ground was always near the river; for the wood, uſually on the ſummit of the hills, the greateſt part of them being evidently once covered with it, and many of them are ſtill ſo.

The natural diviſion of the manors of this diſtrict was therefore into long narrow ſtrips from river

river to wood, with a right to the uſe of both; and as the diſpoſition of much the greateſt part of the diſtrict is in this way, it ſhews, that ſuch diſpoſition was the work of accommodation, given by the original grantors or ſuperior lords to the grantees or inferior holders: and as a further proof that it was ſo, there are numerous inſtances in this diſtrict, where a want of meadow, or of wood, was ſupplied by a grant of thoſe neceſſary articles, taken out of other manors, at the diſtance of ſeveral miles from the manor to which they were annexed.

The influx of trade and commerce, and conſequently of money, has tended to the diviſion of property, and to the increaſe of the number of ſmall freeholders in many parts of the kingdom. Lords of manors, who were inclined to diſpoſe of their property, found they could make more of it by parcelling it out in ſmall lots, than by ſelling it in entire manors. But this has been chiefly the caſe where land lay in the neighbourhood of great towns, and particularly where it could be applied to paſture.

In this diſtrict it has been otherwiſe; the ſmall number of great towns in the ſouth-eaſt part of Wilts; the difficulty of raiſing quick fences in high and expoſed ſituations; the inaptitude of the land to turn into paſture; and, above all, the indiviſibility of the manors occaſioned by their aukward ſhape, and the detached ſituation of the ſeveral pieces compoſing each eſtate; the difficulty of getting

ſuch a ſituation, is certainly unfavourable to many of the purpoſes of agriculture.

STATE OF PROPERTY.

The regular diviſion of the manors in this diſtrict ſhews that a great number of them were originally in one hand, and that their diſpoſition was a matter of choice, and not of neceſſity or accident. The vallies of this diſtrict are (almoſt without an exception) interſected longitudinally by rivulets. The ſides of theſe rivulets, being the moſt eligible ſituation for building, became of courſe crowded with houſes as much as poſſible. Theſe vallies, with their accompanying rivulets, (provincially called bourns) are frequently from three to five miles apart, and hills intervene between bourn and bourn. The ſhape of manors, therefore, neceſſarily became a narrow oblong. It was neceſſary that each manor ſhould have water, ſhould have meadow ground, and ſhould have wood for fuel, (pit-coal being very little, if at all in uſe at that time.) The proper ſituation of the meadow ground was always near the river; for the wood, uſually on the ſummit of the hills, the greateſt part of them being evidently once covered with it, and many of them are ſtill ſo.

The natural diviſion of the manors of this diſtrict was therefore into long narrow ſtrips from river

river to wood, with a right to the uſe of both; and as the diſpoſition of much the greateſt part of the diſtrict is in this way, it ſhews, that ſuch diſpoſition was the work of accommodation, given by the original grantors or ſuperior lords to the grantees or inferior holders: and as a further proof that it was ſo, there are numerous inſtances in this diſtrict, where a want of meadow, or of wood, was ſupplied by a grant of thoſe neceſſary articles, taken out of other manors, at the diſtance of ſeveral miles from the manor to which they were annexed.

The influx of trade and commerce, and conſequently of money, has tended to the diviſion of property, and to the increaſe of the number of ſmall freeholders in many parts of the kingdom. Lords of manors, who were inclined to diſpoſe of their property, found they could make more of it by parcelling it out in ſmall lots, than by ſelling it in entire manors. But this has been chiefly the caſe where land lay in the neighbourhood of great towns, and particularly where it could be applied to paſture.

In this diſtrict it has been otherwiſe; the ſmall number of great towns in the ſouth-eaſt part of Wilts; the difficulty of raiſing quick fences in high and expoſed ſituations; the inaptitude of the land to turn into paſture; and, above all, the indiviſibility of the manors occaſioned by their aukward ſhape, and the detached ſituation of the ſeveral pieces compoſing each eſtate; the difficulty of getting

ting rid of the common rights over the lands, and of courſe the impoſſibility of making much improvement in their value, ſeem to be the principal reaſons that very few manors have been diſmembered, and ſold off among ſmall freeholders.

The reſidence of ſo many of the principal landowners in the county, on account of its reputed good air, and its eligibility for ſporting, has alſo contributed in a great degree to prevent any great diſmemberment of property.

STATE OF FARMS.

The introduction of the common-field huſbandry ſeems to have been very ſlow and progreſſive. The diſperſed ſituation and ſmallneſs of the pieces of the common-field lands now in cultivation, evidently ſhew that the occupiers began with tilling a ſingle acre, (viz. one day's work for a plough) or perhaps only half an acre, each; and that as a want of corn increaſed their cultivation, until they had cultivated all that was moſt proper for that purpoſe, ſtill leaving thoſe parts which were *leſs fit for the plough*, or *moſt diſtant from home*, in a conſtant ſtate of commonage, but by mutual agreement keeping the cattle out of cultivated parts till after harveſt.

This was the origin of common fields.

By

By the ſame kind of mutual agreement, they ſhut up, and in ſome caſes incloſed, ſuch parts of their *common paſtures* which were moſt proper to mow for hay, dividing them into certain ſpecific quantities, either by land-marks, or by lot, *for mowing*, and ſuffering the common herd of cattle to feed them again as ſoon as the hay was carried off, till it was time to lay them up for a new crop.

This was the origin of common meadows.

And theſe mutual agreements, originally founded in neceſſity, became, when approved by the lords, and obſerved for a length of time by the tenants, what are called "Cuſtom of Manors," conſtituting the very eſſence of the Court Baron or Manorial Court; by which both lord and tenants were, and are ſtill bound; and of which, though the lord or his ſteward is the *judge*, the tenants are the *jury*, the cuſtom of the manor equally binding both.

The reaſons why ſo little alteration has taken place in the property of the lands in this diſtrict, has been already given, ſo far as it relates to the land-owners: but there muſt have been ſome reaſons on the part of the occupiers, why, notwithſtanding ſuch great improvements have been made in other parts of the kingdom, by the abolition of common-field huſbandry, (or, as it is called in Wiltſhire, "Tenantry,") and bringing the diſperſed properties of each perſon into fewer pieces, freed from all rights of commonage, (or, as it is called

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in Wiltſhire, putting the lands in "Severalty") ſo few alterations of that kind have taken place in a diſtrict abounding with intelligent, well-informed farmers, and they deſerve particular conſideration. For it is a fact, that though the modern improvements in huſbandry cannot be adopted *to any extent*, in lands lying in a ſtate of tenantry, yet a full half of the manors of this diſtrict are ſtill ſubject, either wholly or in part, to the ſame abſurd cuſtoms of commonage as they were two hundred years ago.

The preſent Diſtribution of the Lands in this Diſtrict may, in general, be divided into Two Kinds:

1ſt. The farms in *ſeveralty* (or thoſe not ſubject to rights of common.) Theſe are in general from 100l. to 300l. per annum: in ſome inſtances lower than 100l. but few ſo high as 400l.

2d. The tenantry yard-lands (or cuſtomary tenements) which are ſtill ſubject to rights of common. Theſe are in general from 18l. to 25l. per annum; ſome as high as 40l. per annum; great numbers of which are ſtill occupied *ſingly*, although conſolidations of them are every day taking place.

ANCIENT DISTRIBUTION OF THE DISTRICT.

THE ancient diſtribution of the greateſt part of this diſtrict was in the following way:

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In general, there was in each manor *one* great farm called the Lord's Farm, which uſually had its lands in ſeveralty, and diſtinct from the tenants.

The reſt of the manor, called the Tenantry Part, was divided into ſmall copyhold tenements or farms, called "Yard-Lands;" each of which was originally *nearly* of *equal value*, and enjoyed *equal rights* of commonage.

Theſe tenants ſent their ſheep to one common flock, where they were kept by a common ſhepherd; and their cows and plough oxen to a common herd, where they were kept by a common herdſman.

As the neceſſity of a common ſheep-flock ſtill continues for the ſake of manuring the common-field lands, a conſiderable part of theſe ſmall properties, called Yard-Lands, are ſtill occupied in their original ſtate of commonage, although the tenure of them is in many inſtances changed from copyhold, ſome to leaſes for lives, ſome fallen into the lord's hands and lett at rack rents, and ſome ſold off in fee, and frequently many of them occupied by one perſon.

The value of theſe yard-lands is different in different parts of this diſtrict, as is already ſtated, and of courſe the quantity of land in each varies very conſiderably. There are many inſtances where a yard-land of about 20l. per annum contains about two acres of meadow land, eighteen acres of arable, (frequently in eighteen or twenty pieces)

pieces) and a right on the common fields, common meadows, and other commonable places, for perhaps forty ſheep, and as many cattle as they can winter with the fodder growing on the premiſes.

Inconveniencies attending it.—Much of the ſingularity of the occupation of the lands in this diſtrict ariſes from its natural ſituation. The ſhape of the manors being, as was formerly explained, generally a narrow oblong, and frequently with the houſes and buildings at one end, there are many inſtances where manors are near three miles long, and little more than half a mile wide.

The application of the land is almoſt uniform. The common meadows, *of which the greateſt part are watered*, immediately adjoin the river: the houſes and ſmall incloſures as near to it as poſſible. Next follows the arable land, until the land becomes too ſteep or too thin to plough, and then the ſheep and cow downs, and frequently the woods at the extremity of the manor, and adjoining the downs or woods of the manors in the oppoſite bourn.

In ſome inſtances, particularly where the bourns approach their junctions, and ſometimes at the heads of the bourns, the lands belonging to each manor are partly on one ſide of the village, and partly on the other, whereby the occupation is rendered more convenient; but theſe inſtances are comparatively few.

The

The difficulties attending the incloſing or even laying in ſeveralty, the commonable lands ſo peculiarly ſituated as great part of the diſtrict is, will be afterwards explained.

GENERAL CUSTOM OF FEEDING THE COMMONABLE LANDS.

The cuſtom of feeding the commonable lands varies in different parts of this diſtrict, as well as the quantity of ſtock each commoner (or occupier of a yard-land) has a right to put; but in general it is as follows:

Sheep commons.—The common ſheep down is open for the common flock during ſummer and autumn. The unſown field (or ſummer field) is open till it is all ploughed for wheat. The ſheep have then only the down, till the harveſt is over and the other fields are clear. They then have thoſe fields and the down until the winter obliges the owners to give them hay. Until this period they are folded on the arable fields in a common fold: but when they begin to eat hay, every commoner finds his own fold and his own hay; the common ſhepherd feeding and penning the whole. When the ewes are near yeaning, the owners take them home to their incloſed meadows; and by the time all the ewes have yeaned, the water meadows are ready to take them to graſs.

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In ſome inſtances, the water meadows are common for the ſheep ſtock; in others, they are private property.

When feeding the water meadows, the ſheep are penned on the barley land; and by the time the water mead graſs is eaten, and the barley ſown, the ſummer field (eſpecially if ſown with ray-graſs) is ready to receive the ſheep, where they generally ſtay till near ſhear-time, and then go to the down until the ſtubble fields are broken, at which time (perhaps about the middle of September) they uſually put the rams to the ewes. Theſe rams are provided, and the common ſhepherd paid, at the joint expence of the commoners.

As in this ſtate of commonage (where there muſt neceſſarily be a great ſcarcity of winter food) it is neceſſary to reduce this ſheep ſtock before winter, it is cuſtomary to ſell off the old ewes and the wether lambs about Michaelmas, and put out the ewe lambs to winter, either on paſture land or turnips, in other parts of the county, and frequently in the adjacent counties.

Theſe lambs are uſually put out from the 10th of October to the 5th of April, and the price is ſeldom lower than 5s. and in ſome inſtances this year has been as high as 8s. for that time. And yet after this reduction of ſtock, the common-field farmers of this diſtrict are frequently obliged to buy hay for the reſt, which they are often under the neceſſity of fetching from ten to fifteen miles. *Cow*

Cow commons.—Cow commons (called cow downs) are frequent in the undivided parts of this diſtrict, but not general. They were more general formerly than now, many of them having been, at different times, turned into ſheep commons by conſent of the commoners. Theſe cow downs are uſually the beſt and moſt level parts of the down lands, and are ſometimes worth from 5s. to near 10s. per acre.

The common herd of cows uſually begin to feed the cow downs early in May, (uſually Holy-Rood Day) and finiſh when the fields are clear of corn. At the beginning and end of the ſeaſon, they are driven to the down in the morning, and brought back in the evening; but in the heat of ſummer, they are only kept on the down during the night, and in the morning they are brought back into the villages, where they feed the lanes and ſmall marſhes by the river ſide (if ſuch there be) till after the evening milking. When the ſtubble fields are open, the cows have a right to feed them jointly with the ſheep: and if there are common meadows (whether watered meadows or not) they have an excluſive right to feed them, till the end of the commoning ſeaſon (uſually St. Martin's Day, 11th November, O. S.) when the owners take them home to the ſtraw-yards. After the cows leave the cow down to go into the ſtubble fields, it becomes common for the ſheep flock, during all or

a certain part of the winter, when it is again laid up for the cows.

WATER MEADOWS.

THERE is, perhaps, no part of this kingdom, where the ſyſtem of watering meadows is ſo well underſtood, and carried to ſo great perfection, as in this diſtrict. This, which is ſo juſtly called by *Mr. Kent* "the greateſt and moſt valuable of all "improvements," was *generally* introduced into this diſtrict in the latter end of the laſt, and the beginning of this century. Many of the moſt valuable and beſt-formed meadows, particularly in the *Wyley Bourn*, were made under the directions of one farmer Baverſtock, of Stockton, between the year 1700, and the year 1705. And at preſent there is ſcarcely a river or brook in the diſtrict, that is not applied in ſome way or other to this purpoſe.

An imperfect ſcheme of watering had undoubtedly been practiſed before that period. Perhaps, indeed, its introduction into this diſtrict is almoſt coeval with that of folding ſheep, with which it is intimately connected. But the *regular mode*, in which both ſyſtems are now conducted, is certainly not very ancient. Many old farmers, who have

died

died within the memory of man, remembered when neither of the ſyſtems was conducted on any regular plan.

Theory of water-meadows.—The idea of watering meadows, ſo far as it relates to bringing the water *upon the land*, was taken from *nature*. It muſt have been always obſerved, that winter floods produced fertility, provided the water did *not* remain *too long* on the land. The idea of taking the water *off* the the land *at will*, and bringing it *on again at will*, is the effect of *art*; and the knowledge of the proper time to do this, the effect of obſervation.

A water meadow is a *hot-bed* for graſs. In what manner water acts upon land, ſo as to produce a premature vegetation, before natural vegetation begins, is a philoſophical problem, which it is not a farmer's province to ſolve. It was ſufficient for him to know that the fact was ſo. Obſervation on the effects of water ſo brought on, ſoon ſhewed them at what period its good effects ceaſed, and when it began to do miſchief. This obſervation, therefore, regulated the time of keeping the water on the land—and as this period was different, on different kinds of land, and at different ſeaſons of the year, it became neceſſary that they ſhould have ſuch a command of the water, as to *take it off* immediately, as ſoon as they found the ſtate of the land required it. This, by degrees, produced that regular diſpoſition of the water carriages and water drains,

which, in a well-laid-out meadow, bring on and carry off the water as ſyſtematically as the arteries and veins do the blood in the human body.

As water meadows are totally unknown in many parts of the kingdom, and but very partially known in others, it may not be thought improper, in an agricultural account of South-Wiltſhire, to ſpeak a little more fully on their nature and properties. If it ſhould tend to excite the ſame improvement in other counties, one of the great objects of the inſtitution of the Board of Agriculture will be anſwered.

Nature and properties of water meadows.—It has been already premiſed, that the principle of a water meadow, is the power of bringing on and carrying off the water at pleaſure. And provided this great object can be accompliſhed, it is not material what the ſhape of a water-meadow is, or that the diſpoſition of the trenches (provincially "*the works of* "*the meadows*") ſhould be uniform. But as very little land can be entirely commanded by water, unleſs its inequalities are reduced by manual labour, it has been found convenient to adopt two different kinds of water meadows, one for land lying on declivities, and which muſt in general be watered from ſprings or ſmall brooks, and the other for low land near rivers, to be watered from thoſe rivers.

The firſt kind is called, in Wiltſhire, "*catch-*"*work meadows*," and the latter "*flowing mea-*"*dows*."

"*dows.*" The latter are by far the moſt general in this diſtrict.

It is impoſſible to give any intelligible, written deſcription of the mode of making theſe meadows. This operation muſt be ſeen to be properly underſtood.

Catch-work meadows deſcribed.—But to elucidate the diſtinction between the two kinds of meadow, and to give ſome idea what are the ſituations in which they may be introduced, it may be neceſſary to remark, that the "catch-work meadow"* is made by turning a ſpring, or ſmall ſtream, along the ſide of a hill, and thereby watering the land between the New Cut, (or as it is provincially called, the Main Carriage) and the original water-courſe, which now becomes the "main drain." This is ſometimes done in particular inſtances, merely by making the new cut level, and ſtopping it at the end, ſo that when it is full the water may run out at the ſide, and flood the land below it. But as the water would ſoon ceaſe to run *equally* for any great length, and would waſh the land out in gutters, it has been found neceſſary to cut ſmall parallel trenches or carriages, at diſtances of twenty or thirty feet, to catch the water again, and each of theſe being likewiſe ſtopt at its end, lets the water

* The "catch-work meadows" are the kind that are ſo common on the ſides of the hills in Devonſhire.

water over its ſide, and diſtributes it until it is caught by the next, and ſo on over all the intermediate beds to the *main drain* at the bottom of the meadow, which receives the water, and carries it on to water another meadow below; or, if it can be ſo contrived, another part of the ſame meadow on a lower level.

To draw the water out of theſe parallel trenches or carriages, and lay the intermediate beds dry, a narrow deep drain croſſes them at right angles, at about every nine or ten poles length, and leads from the main carriage at top to the main drain at the bottom of the meadow.

When this meadow is to be watered, the ends of the carriages adjoining the croſs-drains are ſtopt with turf dug on the ſpot, and the water is thrown over as much of the meadow as it will *cover well* at a time, which the watermen called a "*pitch of* "*work*; and when it is neceſſary to lay this pitch dry, they take out the turves, and let the water into the drains, and proceed to water another pitch.

This kind of water meadow is ſeldom expenſive: the ſtream of water being uſually ſmall and manageable, few *hatches* are neceſſary; and the land lying on a declivity, much leſs manual labour is required to throw the water over it regularly, and particularly *to get it off again*, than in the flowing meadows. The expence of making ſuch a meadow is uſually from three to five pounds per acre; the

the improvement frequently from fifteen ſhillings an acre to at leaſt forty. The annual expence of keeping up the works and watering the meadow, which is uſually done by the acre, ſeldom ſo high as 7s. 6d. per acre.

Flowing meadows deſcribed.—The other kind of water meadows, viz. thoſe uſually called "*Flowing* "*Meadows*," require much more labour and ſyſtem in their formation. The land applicable to this purpoſe being frequently a flat moraſs, the firſt object to be conſidered is, how the water is to be *got off* when once brought on; and in ſuch ſituations this can ſeldom be done, without throwing up the land in high ridges, with deep drains between them. A main carriage being then taken out of the river at a higher level, ſo as to command the tops of theſe ridges, the water is carried by ſmall trenches or carriages along the top of each ridge, and by means of moveable ſtops of earth, is thrown over on *each* ſide, and received in the drains below, from whence it is collected into a main drain, and carried on to water other meadows, or other parts of the ſame meadow below. One tier of theſe ridges being uſually watered at once, is uſually called "a pitch of work;" and it is uſual to make the ridges thirty or forty feet wide, or, if water is abundant, perhaps ſixty feet, and nine or ten poles in length, or longer, according to the ſtrength and plenty of the water.

It is obvious from this deſcription, that as the water in this kind of meadow is not uſed again and again, in *one pitch*, as in the catch meadows, that this method is only applicable to large ſtreams, or to valleys ſubject to floods; and as theſe ridges muſt be formed by *manual labour*, the expence of this kind of meadow muſt neceſſarily exceed the more ſimple method firſt deſcribed: and the hatches that are neceſſary to manage and temper the water on rivers, muſt be much more expenſive than thoſe on ſmall brooks.

The expence, therefore, of the firſt making ſuch a meadow as this is, will be from twelve pounds to twenty pounds per acre, according to the difficulty of the ground, and the quantity of hatch work required; but the improvement in the value of the land by this operation is aſtoniſhing. The *abſtract value* of a good meadow of this kind may fairly be called three pounds per acre; but its value, when taken as *part of a farm*, and particularly of a *ſheep-breeding farm*, is almoſt beyond computation; and when ſuch a meadow is once made, it may be ſaid to be made for ever, the whole expence of keeping up the works, and watering it frequently, not exceeding five ſhillings per acre yearly, and the expence of the hatches, if well done at firſt, being a mere trifle for a number of years afterwards.

Suppoſed quantity of water meadows in this diſtrict. The number of acres of land in this diſtrict, under this

this kind of management, has been computed, and with a tolerable degree of accuracy, to be between 15 and 20,000 acres.

Indeed, it has been found ſo very beneficial, that very few ſpots of land capable of being watered, remain otherwiſe, unleſs where ſome *water-mill* ſtands in the way, or where ſome perſon who has the command of the water *above*, refuſes to let it be taken out of its natural courſe to water the lands below.

Some new meadows might be made, and very great and beneficial alterations made in the old ones, if ſome plan could be adopted to get the command of water where neceſſary for this purpoſe, and particularly in the caſe of water mills. A remedy for this will be afterwards propoſed.

Water meadows do not make a country unhealthy.—It has been alledged by thoſe who know very little of water meadows, that they render the country unwholeſome by making the water ſtagnant. Daily obſervation proves the fact to be otherwiſe in Wiltſhire; and the reaſon is obvious. It has been already ſaid, that a water meadow is a "hot-bed for graſs;" the action of the water on the land excites a *fermentation*; that fermentation would certainly in time end in a *putrefaction:* but the moment putrefaction begins, vegetation ends. Every farmer knows the commencement of this putrefaction, by the ſcum the water leaves on the land; and

and if the water is not then inſtantly taken off, the graſs will rot, and his meadow be ſpoiled for the ſeaſon. The very principle of water meadows will not permit water to be ſtagnant in a water-mead country; it muſt be always kept in action to be of any ſervice: beſides, many of the beſt water meadows were, in their original ſtate, a ſtagnant, unwholeſome moraſs.

The draining ſuch land, and making it ſo firm that the water may be taken off at will, muſt contribute to the healthineſs of the country, inſtead of injuring it.

Great advantages from water meadows.—It is frequently aſked how it comes to paſs, that although water meadows are ſo uſeful as to be almoſt indiſpenſable in South-Wiltſhire, yet in other counties where they are not known, that want of them is not felt; nay, that there are even in this diſtrict many pariſhes which have none, and where the farmers even breed lambs without them? To this I anſwer, that the fair queſtion is not, "How do other counties do without them?" but "how could the farmers of this diſtrict, who are happy enough to have water meadows, purſue their preſent ſyſtem of ſheep-breeding, if thoſe meadows were taken away?"—a ſyſtem which I do not heſitate to ſay, is more profitable to themſelves, their landlords, and the community at large, than any other that could be ſubſtituted in its room; and perhaps this queſtion

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cannot be anſwered better, than by exhibiting the contraſt between thoſe who have water meadows, and thoſe who have none, in the ſame diſtrict.

Every farmer who keeps a flock of ſheep, and particularly a breeding flock, in ſo cold and late-ſpringing a diſtrict as South-Wilts, knows and feels the conſequences of the month of April. "That month *between hay and graſs*, in which he who has not water meadow for his ewes and lambs, frequently has *nothing!*" The ewes will bring a very good lamb with hay only; perhaps a few turnips are preſerved for the lambs, which, in a very favourable ſeaſon, may laſt them through March; but if they are then obliged to go to hay again, the ewes ſhrink their milk, the lambs "pitch and get ſtunted," and the beſt ſummer food will not recover them. To prevent this, recourſe is had to feeding the graſs of thoſe dry meadows that are intended for hay, the young clovers, and frequently the young wheat; in fact, every thing that is green. —And who will pretend to eſtimate, what is the loſs that a farmer ſuffers by this expedient?

Management of water meadows.—The management of water meadows (as nearly as it can be deſcribed in an account neceſſarily ſo conciſe as this) is in the following way:

As ſoon as the after-graſs is eaten off as bare as can be, the manager of the mead (provincially "the drowner") begins cleaning out the main drain, then

then the main carriage, and then proceeds to "right up the works," that is, to make good all the water carriages that the cattle have trodden down, and open all the drains they may have trodden in, ſo as to have one tier or pitch of work ready for "drowning," and which is then put under water (if water be plenty enough) during the time the drowner is righting up the next pitch. In the flowing meadows this work is, or ought to be, done early enough in the autumn, to have the whole mead ready to catch, if poſſible, "*the firſt floods after* "*Michaelmas*," the water being then "thick and good," being the *firſt* waſhing of the arable land on the ſides of the chalk hills, as well as of the dirt from the roads, &c.

The length of this autumn watering cannot always be determined, as it depends on ſituations and circumſtances; but if water can be commanded in plenty, the rule is to give it a "thorough good ſoaking" at firſt, perhaps a fortnight or three weeks, with a dry interval of a day or two, and ſometimes two fortnights, with a dry interval of a week, and then the works are made as dry as poſſible, to encourage the growth of the graſs. This firſt ſoaking is to make the land ſink and pitch cloſe together; a circumſtance of great conſequence, not only to the *quantity* but to the *quality* of the graſs, and particularly to encourage the ſhooting of the new roots which the graſs is continually forming, to ſupport the forced growth above.

While the graſs grows freely, a freſh watering is not wanted, but as ſoon as it flags, the watering may be repeated for a few days at a time, whenever there is an opportunity of getting water, always keeping this fundamental rule in view, "*to make "the meadows as dry as poſſible between every water-"ing;*" and to "*ſtop the water the moment the ap-"pearance of any ſcum on the land ſhews that it has "already had water enough.*"

Some meadows that will bear the water *three weeks* in October, November, or December, will, perhaps, not bear it *a week* in February or March, and ſometimes ſcarcely *two* days in April or May.

In the catch meadows watered by ſprings, the great object is to keep the "works of them" as dry as poſſible between the intervals of watering; and as ſuch ſituations are ſeldom affected by floods, and generally have too little water, care is neceſſary to make the moſt of the water by catching and reuſing it as often as poſſible; and as the *top works* of every tier or pitch will be liable to get more of the water than thoſe lower down, care ſhould be taken to give it to the latter a *longer time*, ſo as to make them as equal as poſſible.

Cuſtom of feeding meadows with ſheep.—It has already been ſaid, that the great object in this diſtrict of an early crop of water meadow graſs, is to enable the farmer to breed early lambs.

As

As ſoon as the lambs are able to travel with the ewes, (perhaps about the middle of March) they begin to feed the water meadows. Care is, or ought to be taken, to make the meadows as dry as poſſible for ſome days before the ſheep are let in.

The graſs is hurdled out *daily* in portions, according to what the number of ſheep can eat in a day, to prevent their trampling the reſt; at the ſame time, leaving a few open ſpaces in the hurdles for the lambs to get through, and feed forward in the freſh graſs. One acre of *good graſs* will be ſufficient for five hundred couples for a day.

On account of the quickneſs of this graſs, it is not uſual to allow the ewes and lambs to go into it with empty bellies, nor before the dew is off in the morning.

The hours of feeding are uſually from ten or eleven o'clock in the morning to about four or five in the evening, when the ſheep are driven to fold; the fold being generally at that time of the year (as has been mentioned before) on the barley fallow. And the great object is to have water-mead graſs, ſufficient for the ewes and lambs, till the barley ſowing is ended.

Meadows laid up for hay.—As ſoon as this firſt crop of graſs is eaten off by the ewes and lambs, the water is immediately thrown over the meadows, (at this time of the year two or three days over "each pitch" is generally ſufficient) and it is then

then made perfectly dry, and laid up for a hay crop. Six weeks are uſually ſufficient for the growth of the crop. It ſeldom requires eight; and there have been inſtances of great crops being produced in five.

Nature of water meadow hay.—The hay of water meadows, being frequently large and coarſe in its nature, it is neceſſary to cut it young; and if made well, it then becomes of a peculiarly nouriſhing milky quality, either for ewes *or* dairy cows.

The water meadows are laid up for a ſecond crop, in *ſome inſtances*; but this is only uſual when hay is ſcarce: not that it is ſuppoſed to hurt the land, but the hay is of that herbaceous ſoft nature, and takes ſo long time in drying, that it is ſeldom well made. It is uſually of much greater value to be fed with dairy cows. And for that purpoſe a fluſh of after-graſs, ſo early and ſo rank, will be preciſely of the ſame comparative ſervice to the dairy, as the ſpring feed has been deſcribed to be for ewes and lambs.

The cows remain in the meadows till the *drowner* begins to prepare for the winter watering.

Water meadows ſafe for ſheep in ſpring, but will rot them in autumn.—Water meadows are reckoned to be perfectly ſafe for ſheep in the ſpring, even upon land that would rot ſheep if it were not watered, but in the autumn the beſt water meadows are ſuppoſed to be dangerous. This is at preſent an in-

explicability

explicability in the operations of nature, and a diſcovery of the reaſon might perhaps lead, in ſome meaſure, to a diſcovery of the cauſes of the rot in ſheep. But the circumſtance itſelf is rather an advantage, than a diſadvantage, to this diſtrict, as it obliges the farmers to keep a *few dairy cows* to feed the water meadows in autumn, and to provide artificial graſſes, or other green crops for their ſheep, during that period.

Proper ſoils for water meadows.—From what has been ſo repeatedly urged, on the neceſſity of making water meadows *dry*, as well as wet, every reader muſt have inferred the advantage of having them, if poſſible, on "*a warm abſorbent bottom.*"*

The bottom or ſub-ſoil of a water mead, is of much more conſequence than the quality or the depth of the top ſoil.

Not but that land on peaty or clay bottoms may be conſiderably improved by watering; and there are many good water meadows on ſuch ſoils, but they are not ſo deſirable on account of the difficulty of draining the water out of them, and making them firm enough to bear treading.

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* There is a ſtriking proof of the truth of this remark, in the water meadows near Hungerford, and particularly at Standen. Although they are laid out in no regular plan, and in many inſtances there are no drains to empty the water carriages, yet the gravel bottom is ſo very abſorbent, that the water will ſoak out in a few hours, and the meadows be left as dry as if they were watered on the moſt ſyſtematic plan. And few meads in the county produce better crops either of ſpring feed or of hay.

A looſe gravel, or what, perhaps, is ſtill better, a bed of broken flints, with little or no intermixture of earth, wherever it can be obtained, is the moſt deſirable bottom.

On many of the beſt water-meadows in this diſtrict, where the bottom is a warm, abſorbent gravel, or rather a bed of broken flints; the ſoil is not ſix inches deep, and that depth is quite ſufficient, in thoſe ſeaſons when water is plenty, as the graſs will root in the warm gravel in preference to the beſt top-ſoil whatever, and ſuch meadows always produce the earlieſt graſs in the ſpring. Nor is it ſo very material, of what *kinds of graſſes* the herbage is compoſed, when the meadow is made. *That kind* will always predominate, which *agrees beſt with the ſoil and the water*, provided the ſupply of water be regular and conſtant *every winter*, otherwiſe *that kind* will predominate which will bear *wet and dry*, and ſome of the worſt graſſes, in their native ſtate, will become the beſt when made ſucculent by plenty *of water*.

[Note. Here follows a copious Diſſertation on the Culture of ARABLE LANDS in this diſtrict, which it would be acceptable to many readers to have inſerted; but our limits forbid a complete inſertion in this place, and an abridgment would be difficult without doing injuſtice to the ſkill and connexion of the very ingenious author.]

COMPARISON BETWEEN DRILL-HUSBANDRY AND BROAD-CAST.

It is not for me to decide on a ſubject, on which both the beſt writers and the beſt farmers in the kingdom, have ſo long been divided in opinion; viz. "Whether the drill-huſbandry is or is not ſu-"perior to the broad-caſt?" They have both, undoubtedly, their merits, or neither of them would have been ſo long, and ſo ably defended. Different ſoils and ſituations require different management. Why may not ſome be particularly adapted to one kind of huſbandry, and ſome to the other? What are the Wiltſhire drag ploughs, but imperfect drill ploughs? And if the drag ploughs have been found, by thirty years experience on Wiltſhire downs, to have inſured good ſtout clean crops of wheat, ſurely the application of a drill-box to the *very ſame inſtrument*, ſo as to depoſit all the corn at *one* depth, muſt be an improvement. So much for the down land. As for the ſand land, the greateſt enemies of drill-ploughs allow their uſe in land in which the ſeeds of all weeds being ſure to vegetate, repeated hoeings are neceſſary to prevent their choaking the corn. If there be any who doubt it, the *ſand* veins of Wiltſhire will convince them; but they muſt come ſoon. In ſeven years time, or leſs, if the land can be put into ſeveralty, they will, in all probability, ſcarcely find a *broad-caſt ſand-farmer* in the county.

Perhaps

Perhaps *ſtrong clays* may furniſh objections to drilling, and particularly to *drilling wheat*. Undoubtedly, the reaſons given for drilling upon Wiltſhire hills do not apply to land of this deſcription; nor does ſuch land require *hoeing*, like the ſandy ſoils. But it ought to be conſidered, that *nature* ſupplies the uſe of the drill-plough in ſtrong clays, eſpecially under their favourite crop—'wheat.' The clods, at the time of ſowing, are a gage to determine the proper depth of every wheat corn; and the pulverization of thoſe clods by the winter froſts and the March winds, is the hoeing of *nature*, inſtead of that of *art*; and as in ſuch ſoils the weeds are too few, and grow too ſlow, to do any miſchief, no other hoeing is in general wanted.

It may be ſaid, that time and experience will one day decide this argument; but reaſon muſt alſo be called in to determine how far the *influence* of *particular ſeaſons* may affect experiments in *particular years*. It is this influence, and not want of obſervation in farmers, that has hitherto prevented, and will always prevent, agriculture from being reduced to *one general invariable ſyſtem*. "What *is* "*right one year, and even for years together, may an-*"*other year be wrong*;" and that farmer who happens to ſuffer ſeverely by purſuing a *right ſyſtem* in a *wrong year*, is ſhy of it for ever after; eſpecially if he has ſuffered by *deviating from any old mode*, to which a popular opinion has been long attached.

In this caſe, he not only ſuffers the loſs of his property, but is ſure to be laughed at by all his neighbours, and even by his own labourers.

In many of the light lands, where ploughing is very little required, unleſs to deſtroy the weeds, Mr. Cooke's inſtrument, called a ſcuffler, which will clean five or ſix acres of land per day, has been uſed with great ſucceſs, and particularly preparatory to drilling. But this inſtrument is not yet enough known, to be in general uſe.

As to the proper depth of ploughing, Wiltſhire farmers are particularly cautious not to plough *below the top ſoil.* Wherever there is a vein of rubbly chalk, or ſmall broken flints, immediately under the top ſoil, they look upon them to be literally "the droſs of the land;" and that, if they are ploughed up, they are "poiſon." Many inſtances are ſhewn, where land of this kind ploughed too deep (frequently ſingle acres in large tenantry fields) upwards of *twenty* years ago, has not yet recovered its former goodneſs. And to preſerve this top ſoil as *deep* as poſſible, the beſt farmers will not permit the *ſurface flints* to be picked off for the roads, for fear of making the land both lighter and thinner. But in the *ſand* veins, where there is a great depth of top ſoil, eſpecially about Lavington, it is not uncommon to plough very deep; and frequently have a ſecond plough following in the furrow of the firſt, ſo as to throw up *new* ſoil, and bury that which is ſuppoſed to be exhauſted.

CATTLE USED IN PLOUGHING.

OXEN are not in general uſe in this diſtrict; and in ſome parts of it, perhaps, not ſo much as formerly, when there were more common cow-downs; and it is very probable, that the gradual decreaſe of cow-downs, which will be the conſequence of the lands being put into ſeveralty, will tend gradually to reduce the uſe of oxen, eſpecially in the hilly parts of this diſtrict. And although thoſe downs might, in many caſes, be much more profitably applied to the keeping of working oxen than cows; yet, if the preſent rage for *fine* ſheep continues, every other kind of ſtock muſt give way to them, and as ſoon as the cows are driven off the downs, the oxen muſt immediately follow.

In the ſaid veins, where the land runs kindly to paſture, the putting the common-fields in ſeveralty will, perhaps, have the contrary effect. It is not that the arguments, which have been ſo often and ſo ſucceſsfully uſed on the *comparative advantages* of uſing oxen inſtead of horſes, are not known, or not underſtood, in Wiltſhire. There are local reaſons peculiar to many parts of this diſtrict, which will prevent oxen from coming into general uſe. The firſt and principal is, the preſent *ſcarcity of incloſed paſture land*, and the inaptitude of a large portion of the ſoil of the diſtrict to make more. The next is, the peculiar *difficulty* of uſing them on the

the *public roads*, on account of the diſtance of many farms from a market, the ſteepneſs of the hills, and the flintineſs of the roads. This laſt reaſon neceſſarily obliging every farmer, who carries corn to market, to keep at *leaſt ſix horſes*, the uſe of oxen is, in a great meaſure, ſuperſeded among the *ſmall* farmers; and the large ones are, unfortunately, not only in Wiltſhire, but in moſt other counties, too fond of *large fine horſes*, and their men too fond of ſhewing them, to give them up readily for oxen. There are, however, ſome exceptions to this remark. Some of the moſt intelligent farmers perſevere in the uſe of oxen, and find them (eſpecially ſince they have exchanged the yoke for the collar) to anſwer a very good purpoſe. As a ſhifting ſtock, where a farmer wants more ſtrength at one time of the year than another, oxen are peculiarly proper, being more eaſily bought and ſold, and that at a leſs loſs or riſque than horſes. And where a farmer has a quantity of rough down land, I am clearly of opinion, that the treading of a few oxen will increaſe the ſheep-feed more than their eating will diminiſh it. I have ſeen ſo many inſtances of downs decreaſing in goodneſs, when changed from cow-downs to ſheep-downs, as to convince me fully of this fact.

REMARKS ON INCLOSING COMMONABLE LANDS.

It has been already remarked, and the aſſertion is founded on an accurate enquiry and obſervation, that at this time the greateſt part of the pariſhes in this diſtrict are wholly, or partly, in a common-field ſtate. Reaſons have alſo been given, why it has ſo long remained in that ſtate, on account of the peculiar ſhape and ſituation of a great number of manors, and the local difficulties attending a diviſion. And theſe reaſons have hitherto operated to preſerve many of them in that ſtate, though propoſals are daily made for a diviſion.

Many advantages, it is certain, have been derived from incloſures already made; and it may be proper now to ſtate the probable advantages to be expected from incloſing, or at leaſt dividing, and putting in ſeveralty, thoſe lands now in a ſtate of commonage, with the moſt practical means of obviating ſuch diſadvantages as will neceſſarily ariſe from a new order of things, in a country leſs favourable than many others to improvements of this kind.

Diſadvantages of the Common Field Huſbandry.

The peculiar diſadvantages, attending the common-field ſtate of huſbandry in this diſtrict, have already been ſaid to be, the obligation of ploughing and cropping *all kinds of ſoil* alike; the almoſt total

total preclusion that a common flock makes to any *improvement of sheep stock*, the difficulty, and in some instances, the impossibility of raising sufficient *hay* or *green winter food* for the stock; and particularly the very great expence and trouble, and the additional number of *horses* necessary, in occupying lands in detached and dispersed situations.

Advantages to be derived from its Abolition.

The advantages to be necessarily derived from an abolition of these impediments to good husbandry, need not be enlarged upon; they speak for themselves: but it must be remarked, that, in many parts of this district, these advantages apply much more forcibly to the case of the great farmer, than of the small one.

It has been already remarked, that the commonable lands of this district consist usually of three or four arable fields, a common sheep-down, sometimes a common cow-down, and in some instances, a common meadow. The custom of a division has been, to give every land-owner an allotment of arable land in one or more of the fields, a sheep-down as near the arable land as possible, and a portion of the common meadows, if there are any. But of these, it is seldom thought necessary to *inclose* any but the common meadows, and perhaps a small part of the arable near home.

The

The farmer of one hundred and fifty, or two hundred pounds a year, will, perhaps, be able, in conſequence of having his land put in large pieces, to reduce his number of horſes *one-third*; he will be able to ſow clover, ſaintfoin, &c. for hay, and raiſe turnips and rape for winter food for his ſheep; of courſe he will not only be enabled to increaſe his flock, but to winter them at home; and though, by this mode of huſbandry, he muſt reduce his number of *acres* of corn, yet he will, by his additional number of ſheep, be able to dung his land ſo much better, that he will raiſe *more grain* than he did before.

Not ſo with the occupier of twenty pounds a year upon Wiltſhire downs. He will certainly have the conveniency of having his land brought together in *fewer pieces.* But as it ſeldom happens, that he could plough his land with fewer than three horſes before ſuch a diviſion, neither can he now do with leſs. He has no incloſed paſture to put theſe horſes in, nor common to turn them on? His right on *the downs* being too ſmall to make it worth his while to take an allotment for a ſheep-down, (of perhaps *twenty acres*, two miles from home) he takes an increaſe to his arable land in the fields near home in lieu of it. But now he can keep *no ſheep* on this allotment, nor would it be worth his while to employ a *ſhepherd* for *ſo few*, if he could. *Without ſheep* he cannot dung his land, becauſe having little

little paſture land, and no cow commons, he can keep *no cows* to make *dung* with his ſtraw; and the arable land being in general ſo little adapted to turn to graſs, he is prevented from incloſing his allotment, and laying it down to paſture.

It may be anſwered, that the peculiar locality of great part of this diſtrict is ſuch, that it was not calculated for the ſeparate occupation of farms of twenty pounds a year; and that, though the owner of ſuch a one cannot live upon it, when put in a ſtate of ſeveralty, and is really injured, provided he occupies it himſelf, yet he may *let it* for one-third more than he could when it was in a ſtate of tenantry.

I allow this argument in its full force; and if it were *now* required to colonize a pariſh in South-Wilts, it would not be prudent to make the diviſion of farms ſo low as twenty, or even forty pounds per annum. But men of this deſcription are *already here*; they are ſettled on the ſpot; it is in many inſtances their own. Juſtice will not let them be diſpoſſeſſed *without their conſent*. Policy and humanity forbid they ſhould be injured, even *with their conſent*.

Theſe difficulties are all obviated in thoſe where there are veins of *ſand land*. There the *little* farmer has really the advantage of the *great* one; provided the allotment of the former is placed, as it ought to be, in that kind of land, and this ſhould be

be the firſt object in all incloſures, where there is land of that deſcription.

Great part of the *ſand land* in this diſtrict is peculiarly applicable to all the purpoſes of a *ſmall* farmer, or, as it perhaps may be better termed, a *garden* farmer.

As quickſet hedges will grow well upon it, it may eaſily be incloſed, and it will, if required, turn readily *to paſture*, ſo that cows may be kept on one part to make dung for the reſt.

If *ſheep folding* be neceſſary, crops of clover for hay, and of turnips for winter food, may be raiſed, on which *ſheep* from the down farmers may always be taken in *to winter*; and with proper manure, ſuch land will bear perpetual crops of almoſt any kind of corn that may be required. And ſuch land is peculiarly applicable to the culture of *potatoes, peaſe*, and ſuch other crops as are the particular province of a *ſmall farmer*, and in which he may, if he pleaſe, uſe the ſpade inſtead of the plough.

Theſe ideas are *not chimerical*, they are already carried into practice in ſeveral ſand pariſhes, that have been lately incloſed in this diſtrict: and the improvement, in many inſtances, has been almoſt inconceivable.

But in thoſe parts of the diſtrict where there are no ſand veins, it is, as has been already ſtated, difficult to *mend* the ſituation of the little farmers by a general incloſure. There is a mode, whereby they

may

may at leaſt be ſecured from being injured, and this has been adopted in ſome late incloſures, by ſetting out the allotments of arable land, to men of that deſcription, *adjoining to each other*, in one or more of the fields, and directing the ſame to remain ſtill in *an unincloſed ſtate*, with a *common right* of ſheep feed for each perſon *over the whole*, and with a *common allotment of down land*, and another of *water meadow*, if it be to be had conveniently, and ſome incloſed paſture to each if poſſible. Under theſe circumſtances, men of ſmall property will be enabled, after an incloſure, to keep a common flock of ſheep, and a common ſhepherd to attend them as they do now, and they will, in ſome degree, *better* their ſituation, becauſe their land will be laid in large pieces; and as *the rules* by which they are to inter-common will be ſettled by the authority of the commiſſioners of the incloſure, they will not be liable to be treſpaſſed and injured by each other, or by their more opulent neighbours.

Notwithſtanding ſome little ſacrifices may be thus made, to the intereſt and comfort of the ſmall farmers, in an incloſure of the commonable fields, and other commonable lands of a manor, by laying their allotments near home, or in ſoils and ſituations the moſt adapted to their occupation; it is very eaſy to prove, that the great farmers will ſtill be very conſiderably benefited, as well as accommodated. Although, on account of the oblong

ſhape

ſhape of a great part of the manor in this diſtrict, the great farmers will be perhaps obliged to take a great part of their arable land at ſome diſtance from home, yet it will have the additional advantage of being near its *natural dunghill*, the ſheep-down: and as ſuch land will of courſe be valued low on account of its diſtance, the owners will be enabled to bear the expence of removing barns to it; and in effect, "bring the land near home," by reducing the trouble and expence of carrying the dung out, and the corn home.

PARING AND BURNING.

PARING and burning land is not in general uſe in this diſtrict of Wiltſhire, in preparing old arable land for a crop, but is frequently, indeed almoſt univerſally uſed, in breaking up new down lands; and as the uſe of this practice is defended by many, as not only the cheapeſt, but as the beſt way of preparing ſuch lands for the plough, and by others totally condemned, on the maxim often quoted in this diſtrict, that "however good this huſbandry "may be for fathers, it is ruin to ſons:" it is an object of very great conſequence, to endeavour to find out where the truth lies between theſe two poſitive aſſertions, by firſt enquiring whether *this mode of huſbandry be in itſelf good*; and next, *whether it be proper for the purpoſe for which it is uſed in this diſtrict.*

And,

And, perhaps, no one object under enquiry, in the agriculture of South-Wiltſhire, will be thought of ſo much real conſequence by the landholders thereof.

Paring and burning land, or, as it is called in Wiltſhire, "burnbeaking," though by ſome ſuppoſed to be a new mode of huſbandry, is perhaps, *coeval* with, if not *more ancient* than ploughing. When land was to be reclaimed from a ſtate of wood land, as great part of this iſland undoubtedly originally was, *manual labour* was alone applicable to the purpoſe.

The wood was cut off, the principal parts of the roots grubbed, and then the rough graſs and moſs, and the whole ſurface of the land, were chopped up with a curved cutting mattock, and burnt to aſhes, and thus the land was prepared for ſowing. This mattock was called a *beak*, and the operation was therefore, and is ſtill frequently, called "*beaking and* "*burning*." Perhaps no method could be better ſuited to the original purpoſe of cleaning rough, incumbered land, in which it was almoſt impoſſible for horſes or oxen to work a plough, than this operation of beaking. And the action of the fire not only conſumed the roots and weeds, and other incumbrances, but corrected the acidity of the ſoil, and rendered it fit for the production of corn. The operation not only anſwering the purpoſe of cleaning the land *better* and *cheaper* than it could have

have been done by the plough, but ſerving *as manure* for ſeveral ſucceſſive crops.

But, unfortunately, this cuſtom, like many others originally good, has, in ſome inſtances, remained, after its original cauſes have ceaſed to exiſt, and in others is applied under circumſtances for which it was never intended.

Paring and burning may be called a powerful medicine, which is only proper when properly applied, but which in improper caſes may do, and ſometimes has done miſchief, almoſt irremediable.

To apply this remark to Wiltſhire downs, it is proper, though it has been already noticed, to repeat here, that the native ſoil of the downs may in general, though with ſome exceptions, be reduced to two diſtinct kinds. "The red land," and "the "black land," the former being uſually a *deep, ſtrong, cohesive, ſour* land, with an intermixture of flint, and a ſolid bed of chalk *immediately* under; and the latter a *looſe, black ſurface*, of the nature of peat on a bed of flints, or rubbly chalk, and the chalk rock *at ſome diſtance* beneath. The former of theſe ſoils lies generally on the tops of the hills, and great part of it was originally in a ſtate of wood-land. At this time it is, in general, incumbered with furze and ſtunted thorn buſhes. The latter uſually occupies the vallies and the ſides of the hills, and though often ſhallow in ſoil, is uſually the ſweeteſt feeding part of the downs. In many inſtances, it

is

is incumbered with a *ſhort blinking heath*; but this production of heath is much oftener the effect of its not having been "hard enough ſtocked with "ſheep," than of any particular poverty in the land. It being a well-known fact, that many downs that were "ſweet and good" within the memory of man, are now, in conſequence of this kind of neglect, entirely covered with heath. Great quantities of both theſe kinds of land have been broken up within the memory of man, and almoſt all brought into cultivation by the ſame means, viz. "Burnbeaking," and the immediate effects have been nearly the ſame, viz. that of producing ſeveral ſucceſſive crops, without any other kind of manure; but the duration of theſe effects has been very different. The red land, *with proper after-management*, being capable of being *kept* in tillage, and thereby conſiderably improved in value; and the black having been reduced, (after the heat of the fire has been exhauſted) by two or three crops, to a mere bed of duſt, *without tenacity* or *coheſion*, and entirely unfit for the vegetation of corn or graſs for a long ſeries of years; the fire having apparently the ſame effect upon it, as ſpirituous liquors on the human body; viz.—that of creating falſe, unnatural, and forced exertions, which the frame cannot long ſupport, and eventually ruining the conſtitution.

It ſeems therefore fair to ſay, under theſe circumſtances, that the black land ought by no means

to

to be burnbeaked; and it might perhaps be equally eaſy to prove, that ſuch land ought not to be broken up at all. Theſe ideas, reſpecting the nature of the ſoil of the Wiltſhire downs, have been digeſted from a long acquaintance with, and obſervation of them; and if they are rightly taken up, the following general rules may be deduced from them.

No down land ſhould be broken up, but *ſuch as will bear corn for a continuance*, after the ſtimulus excited by the firſt burnbeaking is ſubſided.

No down land will bear corn *for a continuance*, unleſs it be manured with ſome *permanent alterative manure*, and there is no ſuch manure to be had on Wiltſhire downs but *chalk*.

The *red land will in general bear chalking. The black land ſeldom or never will.*

The red land therefore, provided its texture be *ſtrong*, *cohesive*, and *ſour*, and particularly if it be deep in its ſtaple, and incumbered with ſtrong buſhes or furze, may in general be broken up; and provided ſuch land is intended to be properly chalked afterwards, no great harm can be done by burnbeaking it previous to the firſt crop, provided the ſurface be pared thin, and as little of the earth burnt as poſſible. Perhaps it is not only the cheapeſt, but the beſt way of bringing it into tillage.

The black land ſhould by no means be broken. It is always too light, and generally too thin, for a ſtate of tillage. Chalk has apparently no effect upon

it, and if it has, it is to make it lighter. This kind of down land is, as has been already obſerved, in general the ſweeteſt paſture, and even the appearance of heath upon it does not indicate that it would not be ſo, if it were properly ſtocked and cloſe fed.

But however burnbeaking may be *proper* in *proper caſes*, for breaking up new land, it is a matter of very ſerious conſideration, how far the ſyſtem of burnbeaking lately introduced, and which ſeems to gain ground as a *general ſyſtem*, upon *old arable land* on Wiltſhire downs, can be reconciled to the rules of good huſbandry.

This ſyſtem ſeems to have a tendency to ſubvert the long-eſtabliſhed huſbandry of Wiltſhire—*the ſheep-fold*, and to introduce a ſyſtem, which, however proper it may be in ſome parts of the kingdom, is not at all applicable to this diſtrict, and appears to carry with it the ſeeds of its own deſtruction.

The general fault of the ſoil, of a great part of Wiltſhire down land, is, that it is already "too "light and too thin." The ſheep-fold is particularly adapted to remedy this fault, by adding to the coheſion of the land. If *this ſyſtem be right on ſuch land, a continuance of burnbeaking muſt be wrong.*

In my opinion, this ſyſtem originates in "that "pride or vanity of ſheep ſtock," which has been ſo often mentioned, and which has already been fatal to a neighbouring county, [Hants] and is doing miſchief to the hills of Glouceſterſhire.

BENEFICIAL PRACTICES.

THE only practices in the huſbandry of this diſtrict, that are likely to be of ſervice elſewhere, are thoſe which will apply to *ſimilar ſoils and ſituations in other diſtricts under worſe management*: or, in other words, if there are any practices, which are the means of enabling tenants to raiſe a greater amount of valuable produce in *this* diſtrict, than tenants can do on ſimilar ſoils and ſituations in *another* diſtrict, under a *different management*, thoſe practices ſhould be introduced into the latter.

It is a fact, that the hills of Wiltſhire are rented *remarkably high*, when compared with the high lands of Hampſhire, Dorſetſhire, and Glouceſterſhire, even in thoſe parts of the county that are not immediately affected by markets.

Thoſe counties were *once* under the ſame general kind of management as Wilts, with reſpect to the ſheep-fold; and even in many parts of Hampſhire and Dorſetſhire, there are water-meadows equally good with thoſe of Wiltſhire.

It remains then to be enquired, what are the cuſtoms *once* poſſeſſed by all theſe counties, but which Wiltſhire *alone* has retained?

Uſe of the ſheep-fold.—This cuſtom appears to be "the uſe of the ſheep-fold;" and that *not merely to keep the ſheep from running away in the night, but with a view to manure the land.*

The "pride of ſheep ſtock," which muſt inevitably tend to the ſubverſion of the ſheep-fold,

infected thoſe counties *firſt*. It is already gone *too far* in Wiltſhire; and thoſe who have attempted to ſtem the torrent of faſhion, by introducing the South-Down ſheep, deſerve the thanks of the land-owners of the county.

Overploughing and underſtocking, in high expoſed ſituations, and particularly where the land is light and looſe, muſt always produce bad effects; and theſe are the natural conſequences of keeping flocks of ſheep for *beauty*, in countries where they ought to be kept entirely for *uſe*.

Uſe of water-meadows.—The water-meadows of Wiltſhire, and the neighbouring counties, are a branch of huſbandry that can never be too much recommended.

In ſpeaking of water-meadows, it has been often objected, that they are local; and that there are many parts of the kingdom in which they neither *can be made*, nor are they *neceſſary if they could be made*.

There are, undoubtedly, *many parts* of the kingdom in which water-meadows *cannot be made*; but nobody will deny, but that there are *thouſands of ſituations* where they could be made, in which they *have never been tried*. And as for their uſe, it may be ſtrongly ſuſpected, that thoſe who deny it have never been in Wiltſhire *in the month of April*. Let thoſe who call it in queſtion point out a ſubſtitute on which a farmer can, with *equal certainty*, depend for the ſuſtenance of his flock in that *trying month*.

Whatever

Whatever may be the earlineſs of the ſeaſon, with reſpect to the ſpringing of either ray-graſs or meadow-graſs, water-meadows will be a *month* before either.

And notwithſtanding the great advantages that have been derived from the introduction of green winter crops, ſuch as turnips, rape, cabbages, &c. (*advantages to this kingdom almoſt beyond eſtimate*) yet this may be laid down as a certain maxim, that, whether the *winter* be hard or mild—whether the *ſpring* be late or early—nature will always have, in this climate, *an "interregnum" between the end of one year's food and the beginning of another.* The ſame temperature of the air in the ſpring, which brings on the graſs, will occaſion all the green winter crops to run to ſeed, and not only to loſe their own nouriſhing quality, but to exhauſt the land on which they grow.

A moment's reflection will convince every man, that nature muſt unavoidably and conſtantly leave this *chaſm* in the year's food. *Winter*, though driven into a ſmall compaſs, *is ſtill winter, and art alone can expunge it from the kalendar. Hot-houſes and hot-beds* have, in a great meaſure, done this for the *gardener. Water-meadows*, which are "*hot-beds for graſs*," will as effectually do it for the *farmer.*

How neceſſary, therefore, is it, to impreſs the value of this branch of huſbandry on the minds of all the land-owners in the kingdom.

It

It is not only the moſt *valuable*, but the moſt *permanent* of all improvements in huſbandry. It not only improves the land *on which it is made*, but makes *all the adjoining land* better by its produce; and it differs *in one very material reſpect*, from *all other* improvements that a landlord can make for a tenant; that is to ſay, *that time will even make it better, and that the careleſſneſs of a tenant cannot make it much worſe.*

IMPROVEMENTS SUGGESTED.

THE *apparent errors* in the ſtock and huſbandry of South-Wiltſhire have been ſo often mentioned in the courſe of the foregoing obſervations, that it is unneceſſary to repeat, at length, the arguments that have been uſed to prove that they *really are* "*errors.*" A brief recital of them will be ſufficient.

Errors in ſtock.—The errors in ſtock may be reduced to one general cauſe, viz. "the pride or "vanity of poſſeſſing large, handſome animals.

1ſt. *Error in ſheep ſtock.*—As to ſheep in particular, this pride of ſtock, however commendable, and however profitable it may be in countries that are adapted to it, does not ſeem at all ſuited to the *bleak hills of Wiltſhire.*

"Warmth and ſhelter are as neceſſary to pro-"duce perfect ſymmetry in the parts of an animal,

"as

" as to unfold the wings of a butterfly, or expand " the petals of a carnation." Where theſe requiſites to animal perfection cannot be had, it is uſeleſs to attempt breeding for beauty.

But it may be aſked, whether thoſe requiſites cannot be had, and warm ſheltered ſituations be found in Wiltſhire?

Undoubtedly they may; but *not in a ſheep-fold on Wiltſhire hills*; and particularly at that time of the year when the fold is almoſt invaluable—" the fold " of ewes and lambs for a barley crop."

It can never be too often repeated, that ſo long as South-Wiltſhire remains a corn country, the *ſheep-fold* muſt be the *ſheet-anchor* of its huſbandry; and until a new method can be found to manure its hill land, equally efficacious with the ſheep-fold, breeding ſheep, as a ſcience, *ſolely for the beauty of the ſhape*, can never be introduced with ſucceſs into this diſtrict.

Error in horſes.—The pride or vanity of ſtock has been almoſt as hurtful to the farmers of this diſtrict, in the article of horſes, as in ſheep.

In both inſtances, the attention has been much more directed to get *large* rather than *uſeful* animals, Large heavy-heeled black horſes have long been the faſhion, and have almoſt driven the ſmart, active, and *really uſeful* horſes, out of the diſtrict. Even the breeders of the North ſay, they can never breed cart colts big enough to pleaſe Wiltſhire farmers.

There

There are, undoubtedly, ſome ſituations where the ſteepneſs of the hills, and others where the heavineſs of the ſoil, require more than ordinary ſtrength; but ſurely it would be better to add to the *number* of horſes upon *particular occaſions*, than to increaſe the ſize of *the whole*, eſpecially as the roads to the market-towns are in general ſo very good.

It has been often aſſerted, that the benefits the Wiltſhire farmers derive from their excellent markets, are more than paid for, by the expence of keeping fine horſes to carry their corn to them.

Great horſes not only *coſt* proportionably more at firſt than ſmall ones, but require much more and better food to keep up their fleſh; and the pride of a farmer, in buying ſuch horſes, is generally followed by the pride of his carter, in keeping them as fat as poſſible. And as their food (which in general is barley) is taken from the barn unmeaſured, the expence of keeping them is ſeldom exactly known.

There are many inſtances, where the expence of keeping up a fine team of horſes amounts to nearly the rent of the farm on which they are kept; and this expence is very ſeldom counterbalanced by any profit ariſing by buying them in when colts, and ſelling them at five or ſix years old, to go in ſtage waggons or London drays, although this has been the great pretence for keeping this kind

of

of horſes. Hundreds of colts have been bought at thirty guineas a-piece, *for the chance of ſelling one now and then* for forty-five or fifty, two or three years afterwards, under the idea that they *earn their bread* during the time the farmers keep them, and that the advance in their price is *all gain.*

But this is certainly a miſtake. A large horſe ſeldom comes to perfection till ſix years old; and during its progreſs to perfection, it muſt be *nurſed*, and *treated tenderly*, and *favoured in its work*, or it will never attain its full ſize and beauty.

This nurſing and tender treatment muſt be at the expence of the farmer; and the favour of work, at the expence of the older horſes: ſo that the young ones, inſtead of *earning* the bread they eat, are eating that which the *others earn.*

If the farmers in this diſtrict were able to breed their own horſes, this argument would have leſs weight; but the great price at which cart colts have been bought for many years, precludes the poſſibility of getting much by them afterwards. Beſides, this kind of horſe is naturally too heavy, and too ſlow in its ſtep, for the purpoſes of Wiltſhire farming, or perhaps, indeed, for the farm uſe of any diſtrict. In light ſoils, ſo much ſtrength is not wanted. In heavy ſoils, the weight of the animal does injury to the land.

Large heavy-heeled horſes are, undoubtedly, fit for ſteady heavy drafts on public roads; but, for a farmer's

farmer's uſe, a ſmaller and more active kind of horſes will not only ſtep quicker, but will bear their work more hours in a day; and will keep up their fleſh, not only with proportionably leſs food, but with that of an inferior kind.

Error in cow ſtock.—The *cow ſtock* of this diſtrict is not numerous enough to be a ſubject of much animadverſion, with reſpect to *its kind.*

The great error in this ſtock is the ſmallneſs of the *quantity* kept, the rage *for fine ſheep* having almoſt driven the cow ſtock out of the diſtrict.

South-Wiltſhire farms are not calculated to keep *many cows*, but the greater part of them would keep more than they do, eſpecially ſuch as have much down land; and that, if repeated experience may be relied on, without diminiſhing the ſheep ſtock.

Where there are water-meadows, cows are indiſpenſably neceſſary to eat the after-graſs; and in winter they are always ſo, to eat the barley ſtraw, and make dung. There is always as much diſtant land on a South-Wiltſhire farm as the ſheep-fold can manure. The home arable ſhould be manured with pot-dung, and more eſpecially when in preparation for a turnip crop.

If cows were *formerly* thought ſo uſeful, as to be reckoned indiſpenſable on the farms of this diſtrict, they muſt certainly be much more ſo *now*, when their produce is worth, at leaſt, *one-third* more than it was thirty years ago.

Few

Few reaſons need be adduced to prove, that the beſt kind of cow for this diſtrict is that which will bear *hard-keeping* beſt; and particularly that kind which will beſt bear wintering in a *ſtraw-yard.*

The expence of *hay*, in attempting to keep up the fleſh of *large, handſome cows*, during the winter, has tended very much to leſſen the cow ſtock of this diſtrict.

Summary of errors in ſtock.—In ſumming up the errors in the ſtock of this diſtrict, it is worthy of remark, that the attempts to improve the breed of ſheep, horſes, and cows, have uniformly been, *by enlarging the ſize of the animal;* whereas, the only animal, in which a *real change for the beſt* has been made in this diſtrict, "*the pig,*" has been improved by *reducing its ſize*, and introducing a kind that will *live harder*, and that will be *fit for uſe at an earlier age.*

And, perhaps, this remark will apply as well to many other counties, as to Wiltſhire.

Errors in the huſbandry of the diſtrict.—The great errors in the huſbandry of this diſtrict have been already noticed to be, the ſowing more land with *corn*, and particularly with *wheat*, than can be properly manured with the ſtock on the farm; and the not making proper proviſion either by hay, or green crops, to winter all the ſheep ſtock at home.

Theſe two errors proceed from one cauſe, viz. an anxiety in farmers to have a certain number of

acres

acres of wheat every year; and, frequently, without conſidering whether they have ſufficient manure or not, or even whether the land be at all adapted to wheat.

This cuſtom, originating in neceſſity in common-field huſbandry, is too often retained on ſeveralty farms. The obſervation and good ſenſe of farmers may, in time, alter this mode: but the temptation of immediate profit is frequently too ſtrong to allow farmers to look forward to future conſequences, and more particularly thoſe who either know or fear that they ſhall ſoon quit their farms; and it is very natural for a farmer, who enters on a farm exhauſted by over-cropping, to leave it in a ſimilar ſtate, unleſs he is compelled, by his agreement, to do otherwiſe. Nothing but leaſes for *certain terms* of years, and an obligation to purſue a *certain mode* of huſbandry during the term, can prevent this practice. If a farm be entered on in an exhauſted ſtate, the tenant ſhould have an allowance for ſuch bad entry, and be *obliged* to leave the farm in a good ſtate at the end of his leaſe.

It is impoſſible to lay down particular rules here, for the mode of huſbandry neceſſary to be purſued on a South-Wiltſhire farm during the term of a leaſe, or in what manner a farm ought to be left for a coming-on tenant.

They depend on ſoils and ſituations, but they ought, by all means, to be poſitively limited and ſettled,

ſettled, previous to a tenant's entry. Nothing but this can prevent the quarrels which are continually happening, between a going-off and a coming-on tenant, in this diſtrict.

The indiſpenſable neceſſity of an obligation on a tenant, to purſue a regular courſe of huſbandry on a Wiltſhire-down farm, is a reaſon why farms ſhould never be lett without leaſes in this diſtrict. In many counties, leaſes are underſtood to be only neceſſary for the *ſecurity of the tenant*, but here they are abſolutely neceſſary for the *ſecurity of the landlord*.

The term of years to be granted by a leaſe ſhould be ſo calculated as to bring *all* the land, or *as much* of it as poſſible, round in ſucceſſion a *certain number of times*; ſo that the tenant may have juſt as many *complete years produce*, as he pays *years rent*, and *leave* the farm exactly *in the ſtate he entered upon it*.

The term ſhould be therefore ſuch as to be the moſt diviſible into the ſeveral periods of ſowing the different kinds of land. Moſt farmers will expect to have liberty to ſow ſome of their loweſt and ſtrongeſt lands to wheat every three years, and the lighter and more expoſed parts every four; and they ſhould not be permitted to ſow their old burnbeak land oftener than every ſix years.

A term of twelve years ſeems, therefore, to be the moſt appropriate to the general huſbandry of South-Wilts.

Proper

Proper ſize of a South-Wiltſhire farm.—As the only difference between good huſbandry and bad, is, that the former, by enabling a tenant to raiſe a *greater* comparative produce at a *leſs* comparative expence, enables him to acquire more profit to himſelf, and to give a greater rent to his landlord, than he could do by purſuing the latter, it may not be improper here to enquire *on what ſized farm, as well as by what mode of huſbandry*, a farmer in this diſtrict will be beſt able to do this; and this enquiry is particularly neceſſary at this time, when ſo great a part of South-Wiltſhire is emerging into a new ſyſtem, by the extinction of lifehold tenures, and the abolition of common-field huſbandry.

At a time when this diſtrict was, in general, in a ſtate of lifehold tenure, the ſize of farms was not always an object of the choice of the landlord, but of neceſſity; and while the lands remained in a ſtate of commonage, the occupiers were in an equal ſtate of advantage (or rather of diſadvantage.) But in thoſe manors where it is intended that the lifehold tenements ſhall fall into hand, and that farms ſhall be made out of them, it becomes an object of conſideration, " what the moſt proper ſize of a South-Wiltſhire farm is;" ſo as to aſcertain the neceſſity of taking down unneceſſary buildings, and to determine the number and ſituation of thoſe neceſſary to be built in their room.

Much

Much has been ſaid and written about the proper ſize of farms. *The impolicy of large farms* has been very frequently, and very ably diſputed, and perhaps the *poſſibility of their being too ſmall*, in particular counties, might have been as clearly demonſtrated, were it not that it is an unpopular argument; and that there are few, who would not rather have their judgment, than their humanity, called in queſtion.

But after all that has been, or can be ſaid on the ſubject, the ſize of farms muſt always depend on ſoils and ſituations, and modes of huſbandry; and every country *has its level*, to which farms of a certain ſize are peculiarly adapted; and if they are much above or below this, they muſt be managed to the diſadvantage of the occupiers.

Thoſe farms are of the moſt proper ſize, which return the moſt proportional produce at the leaſt proportional expence. This ought to be the great object of every land-owner. The object of every tenant is to live by his induſtry; if that induſtry will not allow him to live, he had better be a labourer.

In thoſe modes of huſbandry where the hands, as well as the eyes of the farmer, and of every branch of his family, can be fully employed, ſmall farms can be managed to advantage.

In dairy farms this is peculiarly the caſe; and it is frequently ſo in countries where the land is partly applied to breeding cattle, and partly to raiſing corn,

corn, eſpecially where lime, ſea ſand, and ſimilar manures, are to be fetched from a diſtance on horſes' backs, as in Devon and Cornwall; and where the ploughing is entirely, or chiefly, done by the oxen bred on the farm; and even in ſome parts of South-Wiltſhire, where ſmall farms are ſituate on ſandy ſoils, they may be applied, on a garden ſyſtem, to raiſing eſculent vegetables very advantageouſly.

In theſe caſes, where circumſtances enable *ſmall farmers* to do almoſt the whole of the neceſſary work of their farms *with their own families*, they can bring their produce to market on equal terms with the large ones.

But on Wiltſhire-down farms, where horſes are neceſſary to plough the land, and ſheep to manure it, the little farmer ſtands on a very diſadvantageous compariſon with the great one, being obliged to be at much greater proportional expence in horſes and ſervants.

Every Wiltſhire-down farm, if even ſo ſmall as 40l. per annum, provided it is to be manured by the ſheep-fold, requires a ſhepherd, a carter, and a plough-boy, and ſeldom leſs than three horſes, but frequently four; and yet a farm of double the ſize may be managed frequently with one, or at the utmoſt, with two additional horſes, and with one, or at any rate with two additional boys. For, whether theſe ſervants and horſes have or have not full employ, their expence will be nearly the ſame;

and

and if the farmer takes one branch of the active labour upon himſelf, the other branches are ſuffering for want of his ſuperintending eye; and a farm of this kind furniſhes very little employ for his wife and daughters.

The great object of conſolidating farms, is an increaſe of rent; but it may be laid down as a certain maxim, that ſuch increaſe cannot be obtained, except where a decreaſe of uſeleſs hands, and particularly of uſeleſs horſes, can be made by ſuch conſolidation.

In this diſtrict, the conſolidation of ſmall eſtates has tended very much to reduce the number of horſes;* and it is chiefly by this reduction, that a ſmall eſtate is frequently worth more to be added to a farm, than occupied ſeparately. But there muſt be a period in the ſize of farms, at which this advantage muſt end; and beyond which, a farm may be too big to be managed properly or profitably.

The ſize of a Wiltſhire farm ſhould be, therefore, ſuch as the maſter's eye, and one *principal* ſer-

* As proofs of the reduction of horſes by conſolidating ſmall farms, the pariſh of Monkton-Deverill, which contains 8 yard-lands, or ſmall eſtates, of 40l. a year each, was occupied, 50 years ago, by 7 farmers, who kept 29 horſes. It is now in 4 hands, and managed with 19 horſes; and the adjoining pariſh of Brixton-Deverill, which, 50 years ago, was in 6 hands, and employed 43 horſes, is now in 3 hands, and employs only 26 horſes; and the ſize of the horſes is very little increaſed ſince the former period.

vant in each department, can manage properly; and for this, one head carter, with ſuch a number of boys as may occaſionally be wanted, and one head ſhepherd, with aſſiſtance at ſeaſons of urgency, will generally be ſufficient.

Perhaps the loweſt ſize of a Wiltſhire-down farm, that can be managed to advantage, is a good *ſix* horſe buſineſs, and the higheſt a *nine* horſe buſineſs, or *ten* at the utmoſt. Beyond this extent, *two* men are required in each of theſe ſubordinate capacities; a jealouſy is excited between them; the maſter's eye is inſufficient to manage them, and a bailiff is neceſſary.

This buſineſs becomes then, to all intents and purpoſes, *two farms*; and would certainly be better managed, if in the occupation of two *farmers*.

It is not meant here to ſay, that all the farms in this diſtrict, of a ſmaller deſcription than a ſix-horſe buſineſs, ſhould be conſolidated. That would be cruelty, as well as impolicy.

Where there are buildings proper for the occupation of farms in that ſtate, and where tenants are ſettled on them, and, from peculiar circumſtances, can live on them, and pay a rent equal to their value, they ought to be allowed to remain. It is only meant to apply to caſes, where new farms are to be made at the owner's option, *and is rather intended to point out the proper extreme of largeneſs, than the extreme of ſmallneſs*; but, at the ſame time, with

every

every deference to ſituations and circumſtances, which will always furniſh exceptions to all general rules in agriculture.

In agriculture, as well as in manufactures, it ſhould always be remembered, how indiſpenſable a ſufficient *capital* to manage a buſineſs properly, is to the ſucceſs of that buſineſs; and no man ſhould engage in a concern, to which his capital is not ſo far equal, that he may not be obliged to ſell his commodities in a ſinking market, or be prevented, by want of money, from buying when he ſees a proper opportunity.

2. NORTH-WEST DISTRICT.

Soil.

The ſoil of this diſtrict, though not ſo uniform as South-Wilts, may, nevertheleſs, be reduced to a few leading features; and thoſe, in general, may be better defined by a deſcription of the ſub-ſtrata, or under-ſoils, than by any peculiar characteriſtics of the upper-ſtratum, or top-mould.

The under-ſoil of a large proportion of it (viz. in a direction from Cirenceſter to Bradford) is a looſe, irregular maſs of that kind of flat broken ſtones, called in Wiltſhire "Corn Grate;" of which the greateſt part of the Cotſwold-Hills in

Glouceſterſhire is compoſed, and which runs, without interruption, through the North-weſt part of Wiltſhire, to its termination at Frome in Somerſetſhire; the ſtones being, in ſome places, thin enough for ſlates to cover houſes; in others, laying in large flat beds, fit for pavement, and in ſome aſſuming the ſhape and qualities of freeſtone; but, in general, lying in thoſe looſe, flat broken pieces, ſo well adapted to building the dry fence walls in common uſe on Glouceſterſhire hills, and in many parts of this diſtrict, and lying uſually in horizontal beds, mixed with earth.

The top-ſoil of this rock, or rather maſs of ſtones, is chiefly that kind of reddiſh, calcarious loam, mixed with irregular, flat broken ſtones, uſually called "Stone braſh."

The goodneſs of this ſoil varies very much, according to its comparative depth to the rock, and according to the abſence or preſence of an intervening vein of cold, blue clay. This clay is of a marley appearance, but in general not ſufficiently calcarious to be valuable as manure, and its preſence is obvious to every traveller, by its natural and ſpontaneous production of oak trees; while its total abſence, or, at leaſt, its lying very deep, is as ſtrongly denoted by the ſpontaneous and plentiful production of beautiful elms.

The North-weſt verge of the county, viz. from near Cirenceſter, by Malmſbury, and on the Weſt

ſide

ſide of the road from London to Bath, may be truly called the Cotſwold part of Wiltſhire.

Its external appearance, and internal component parts, are nearly the ſame with the Cotſwold hills of Glouceſterſhire; except where the vein of clay lies ſo near the ſurface, as to make it colder.

This part is, on account of the thinneſs and looſeneſs of its ſoil, *uſually*, and, in many inſtances, *neceſſarily*, kept in an arable ſtate; while the adjoining land, viz. about Chippenham, and from thence ſouthward, through Melkſham and Trowbridge, which happens to have a greater depth of ſoil, and has a pure warm rock, without the intervening vein of cold clay, is capable of grazing the largeſt oxen, and is, perhaps, one of the moſt fertile parts of the county, unleſs, poſſibly, the vein of gravel next deſcribed, may be excepted.

There is a vein of gravel, of a moſt excellent ſmall, pebbly, ſhelly kind, and in general covered with a good depth of rich loam, which runs in a broken line from Melkſham through Chippenham to Cricklade; but its greateſt body extends from Tytherton through Chriſtian-Malford and Dantzey to Somerford, and perhaps the richeſt part of it is at or near Dantzey.

It is a moſt excellent under-ſoil, warming and drying the top-mould, and it is only to be lamented, that its quantity in this diſtrict is ſo ſmall. It is uſed for roads and walks, and, when waſhed or ſcreened,

ſcreened, for drains in the cold clay lands which border upon it.

There are two principal veins of ſand in this diſtrict. They are in general red, and of a ſharp, looſe, gravelly texture, and of courſe not ſo fertile as the tough, cloſe ſands of South-Wiltſhire. One of theſe runs from Redburn, by Seagry, Draycott, and Sutton-Benger, to Langley-Burrell near Chippenham. And another begins at the oppoſite correſponding hill at Charlcot, and runs through Bremhill to Bromham.

From this laſt vein, there are two detached maſſes at Rowd and Seend to the ſouth, and probably the detached maſſes appearing at different places to the north of it, viz. between Charlcot and Swindon, are parts of the ſame vein.

All theſe detached maſſes have a mixture of ſome other ſoils, and are generally more fertile than the principal veins. Under the ſand land at Swindon, lies a ſingular rock of ſtone of a moſt excellent quality, ſerving equally, in its different beds, for the purpoſe of building houſes, paving and covering them.

The greateſt part of the reſidue of the ſoil of this diſtrict, and particularly from Highworth, by Wotton-Baſſet to Clack, lies on a hard, cloſe rock, of a rough, irregular, ruſtic kind of baſtard limeſtone, of very little uſe but for the roads. The ſoil over this kind of ſtone is various, but generally

cold,

cold, owing to its own retentive nature, and to the frequent intervention of a vein of clay.

Bradon Foreſt, (between Cricklade and Malmſbury) is an exception to the whole. It is a cold iron clay to the very ſurface; ſo bad, as to be called, by way of diſtinction, "Bradon Land," and was never ſo well applied, as when in its original ſtate of wood-land.

Climate.—The climate of this diſtrict is various, and though, in general, milder than that of the high lands in the South-eaſt diſtrict, is nevertheleſs cold, and in general, unfavourable to the purpoſes of early ſpring vegetation, owing probably to the cold retentive nature *of the under-ſoil of great part of this diſtrict.*

STATE OF PROPERTY AND FARMS.

It has been already obſerved, that this diſtrict was formerly, and at no very remote period, poſſeſſed chiefly by great proprietors, who leaſed out the greateſt part of it in ſmall eſtates for *lives renewable*, at which time the country in general was in an open common field ſtate, and moſt of the leſſees lived on their own holdings. But that ſince that period, many diviſions of property had taken place, and freeholders had been created by the diſmemberment of manors, and gradual extinction of life-

hold

hold tenures, particularly in thoſe parts which have been incloſed and laid down to paſture. That many manors, nevertheleſs, remain in their original common-field ſtate, and are ſtill granted out on the ſame lifehold tenures, particularly thoſe in mortmain, belonging to churches, colleges, ſchools, and other pious and publick foundations; but that upon the whole, property is much more divided than in the South-eaſt diſtrict of the county. And although the preſent occupation of ſome parts of the county is in ſome inſtances in a few hands, particularly ſome great dairy and grazing farms in the North part, and a few large corn farms in the North-weſt part, yet a great part of the diſtrict may ſtill be ſaid to be *much ſubdivided* in its occupation, particularly in the neighbourhood of the manufacturing towns.

MODE OF OCCUPATION.

THIS diſtrict is for the moſt part incloſed, though not entirely ſo, there being ſtill a few common-fields remaining, and ſome commons, but no very extenſive tracts of either.

The ſtone-braſh land, on the North-weſt verge, is chiefly arable.

A great part of the reſidue is in graſs land, and a great proportion of that part is applied to the dairy,

dairy, particularly to the making of cheeſe. But although ſo great a portion of this diſtrict is now in a ſtate of incloſed paſture land, it does not appear to have been ſo from any remote period of antiquity.

The ſtraitneſs of the hedges, the uniformity of the incloſures, and the evident traces of the plough, are convincing proofs, that a great portion of it was originally in an open common field arable ſtate, not excepting ſome of the very beſt meadow land on the fertile banks of the Avon.

The difficulty of tilling and cropping land naturally wet and heavy, and its aptitude to run quickly to graſs, has occaſioned, from time to time, great quantities of it to be laid down to paſture, and the increaſe of the rents of the land when ſo applied, occaſioned in a great degree by the excellence and increaſing fame of the cheeſe made in this diſtrict, has contributed to keep it in that ſtate, and daily to increaſe its quantity.

The cheeſe of this diſtrict was for years ſold in the London markets by the name of Glouceſter cheeſe, but is now well known by the name of "North-Wiltſhire cheeſe."

It was at firſt doubtleſs an imitation, and perhaps an humble one, of that made in the vale of Glouceſter, but is now, in the opinion of many, at leaſt equal, if not ſuperior, to that of the favourite diſtrict of Glouceſterſhire, the hundred of Berkley.

Mr.

Mr. Marſhall, who has ſo fully examined, and ſo ably deſcribed, the preſent ſtate of the dairy in both diſtricts, leans ſtrongly to that opinion.

Although this diſtrict varies as much, apparently, in ſoil and ſituation as almoſt any two counties can do, it is amazing how ſtrong the predilection is to the dairy, and particularly to the making of cheeſe in every part of it; and ſtill more ſo, that the cheeſe produced on ſoils and ſituations totally diſſimilar, ſhould frequently be found, when under ſkilful management, to be equally good. A ſtrong proof, that although ſoil and ſituation may, in ſome meaſure, contribute to the production of that neceſſary article, yet art contributes more, or, perhaps, in other words, the dairy-women of this diſtrict, who happen to be ſituated in ſoils and ſituations naturally unfavourable to the making of cheeſe, have by attention and obſervation, found out the cauſes and the remedies for the faults peculiar to cheeſe made from their own dairies; and nothing has contributed more to excite that attention and obſervation, than the rivalſhip neceſſarily produced in a diſtrict, anxious, at firſt, to rival their neighbours in the vale of Glouceſter, and then to keep up the ſuperiority in goodneſs, and of courſe in price, which North-Wiltſhire cheeſe had, by degrees, acquired.

But although the dairy has, from time to time, made great in-roads on the arable lands of this diſtrict,

diſtrict, *that* has likewiſe, in its turn, loſt ground, and particularly on the moſt fertile lands, by the rage for grazing.

The rich and the lazy find this a pleaſant reſource; and the dairy, though much more profitable, is obliged to give way to it.

Even thoſe who are profeſſedly dairy farmers can ſeldom reſiſt a propenſity to apply a little of their beſt land to the purpoſe of grazing their own dry cows, and of fatting a few ſheep in winter, or taking in ſtock ſheep to winter for the down farmers.

It may, therefore, be fairly aſſerted, that notwithſtanding the ſtrong natural predilection of this country to the dairy, and the peculiar excellence of the dairy-woman in the making of cheeſe, at leaſt one-fourth of the graſs land in this diſtrict is applied to grazing.

The impropriety of this innovation, in many parts of this diſtrict, will be afterwards noticed.

The dairy farms in North-Wiltſhire have, in ſome caſes, a ſmall quantity of arable land annexed to them, in others not.

The propriety of this appendage will alſo be afterwards enquired into.

LIVE STOCK.

As the dairy cows of this diſtrict form ſo great a part of its depending ſtock, it is an eſſential object

ject of enquiry, which is the moſt proper kind of cows, for the particular purpoſe for which they are principally kept in this diſtrict; viz. the making of cheeſe.

Cow ſtock.—It does not appear, at this time, what was the original kind of cow kept in this diſtrict; probably, the old Glouceſterſhire cow—a ſort now almoſt extinct, or, perhaps, as is now the caſe in Somerſetſhire, a mixture of all kinds. But the univerſal rage, for upwards of twenty years paſt, has been for the long-horned, or, as they are called, the "North-country" cows; and at this time, perhaps, nine-tenths of the dairies in this diſtrict are entirely of that kind. The reaſons given for the general introduction of this ſort are, the nearneſs of their ſituation to the North-country breeders, where they can get any quantity they want at any time, cheaper than they can rear them in a country where land is in general too good, and rented too dear for that purpoſe; and, eſpecially, as in conſequence of the great demand for the Bath and London markets, calves will pay better to be ſold for veal, than to be kept for ſtock; but, perhaps, the real reaſon is, that "pride of ſtock," which, operating like the pride of ſheep and horſes in South-Wiltſhire, has gradually led the farmers to an emulation in *beauty* and *ſize*, more than in *uſefulneſs* and *profit*; and which pride, the breeders have not been wanting in uſing every artifice to create and promote.

Two

Two oſtenſible reaſons are given by the dairy farmers, for continuing this kind of ſtock, viz. that they can make more cheeſe from each cow; and that theſe cows will yield more, when thrown off to be fatted, than any other ſort.

The quantity of cheeſe produced from each cow in this diſtrict, is certainly, as Mr. Marſhall juſtly obſerves, amazingly greater than is common in any other cheeſe-making diſtrict; ſometimes as high as $4\frac{1}{2}$ cwt. or near 5 cwt. per cow; ſeldom lower than 3 cwt.; perhaps $3\frac{1}{2}$ cwt. is a good average in a good cheeſe-making year, on every cow that calves in proper time. But the ſecond reaſon, viz. that this kind of cows produce more than any other kind, when ſold for fatting, is an anſwer to the firſt, for this ſimple cauſe, becauſe they are bigger.

If, therefore, it can be proved, as the oppoſers of this breed ſay it eaſily can, that four cows of a ſmall ſize will, with the ſame food, produce as much, or more cheeſe, than three of the large long-horned kind, it will be eaſy to prove, that the ſmaller kind will be the moſt eligible ſtock; firſt, becauſe, in caſe of the death of an animal, the loſs is not ſo ſerious, and, principally, becauſe the weight of a large animal is an eſſential injury to land of which the great fault is, its being already too cold and wet. Beſides, it is allowed, even by the advocates for this kind of cow, that they do not come to perfection, until they are, at leaſt, two years older than cows

of

of a ſmaller kind; and that, whatever may be the comparative merits of the female, the oxen are certainly not only the uglieſt, but the worſt and leaſt ſaleable of all kinds bred in this kingdom.

Theſe are, undoubtedly, two objections againſt a dairy-man breeding his own ſtock out of the long-horned kind of cows; and yet no intelligent man will deny the uſe, and indeed the neceſſity, of breeding his own ſtock, where it can be poſſibly effected; as no cows ever ſettle ſo well in a dairy, as thoſe actually bred on it.

Many attempts have been made lately, to ſupplant the long-horned cows, by introducing the Devonſhire kind into this diſtrict. The comparative merits of the two ſpecies are very warmly conteſted: the Devonſhire cow, undoubtedly, gets ripe at an earlier age than the long-horned cow, and, being a ſmaller animal, is leſs liable to tread and poach out the wet lands; and being diſpoſed to get fat at an early age, and when fat of a greater comparative value to the butcher than almoſt any other kind, is much better calculated than the long-horned cow, for thoſe who *breed* for the purpoſe of fatting.

How far theſe properties, particularly that remarkable diſpoſition to get fat at an early age, may anſwer the general purpoſe of a dairy, where milk alone is required, remains to be proved.

It

It is poſſible, that each of the two kinds of cows may be moſt proper, for the particular purpoſes for which they are kept. But the ſupporters of the Devonſhire cows ſay, that they are equally good milkers with the long-horned ſpecies; and yet, that they are ſo much ſmaller, and eat ſo much leſs food, that three of theſe may be kept on the ſame land as will keep two long-horned cows. If this can be proved, the queſtion is decided at once.

There ſeems to be an increaſing opinion of the merits of the Devonſhire kind, and, perhaps, if half ſo much care and attention had been paid to the breed of the Devonſhire cows, as has been beſtowed on the long-horned kind, it is probable that the former might have been ſtill more improved, and that the compariſon might have been much more in their favour.

Whatever may be the real comparative merits of the two kinds of cows for the dairy, there is not a doubt but the Devonſhire kind are the moſt proper for fatting; and as to the oxen bred from the two kinds, it would be injuſtice to the Devonſhire oxen, even to make a compariſon between them.

Swine.—Pigs are looked upon to be a neceſſary appendage to every dairy farm; a great number are bred with the whey and offal of the dairy, and many fatted; barley-meal, mixed with the whey, is the general fatting food; peaſe are not ſo much uſed as formerly.

The

The kind of pig is generally a mixture of the long-eared white, with the black African, or negro pig; which croſs has been found to be a very great improvement.

Stock fatted for ſale.—There are great numbers, both of cattle and ſheep, fatted in this diſtrict. The cattle conſiſts chiefly of long-horned cows, turned off from the dairies, and of oxen brought from different counties, particularly from Devonſhire. They are uſually bought in very early in the ſpring, ſo as, if poſſible, to be finiſhed with graſs; but the largeſt and lateſt are taken into the ſtalls, and finiſhed with dry meat, chiefly hay.

Corn is but little in uſe for fatting cattle in this diſtrict; of late, potatoes have been introduced for winter fatting, dreſſed with ſteam, and mixed with cut hay or ſtraw, as is mentioned in the deſcription of the ſouth-eaſt diſtrict, and found to anſwer. Bath takes off many of the fat cattle of this diſtrict; many are ſold at Saliſbury market for the conſumption of Hants and the adjoining counties, but the greateſt part go to Smithfield.

The ſheep fatted in this diſtrict, are uſually bought in at the Michaelmas fairs; the principal object is, to fat them, during the winter, on land that will not bear the treading of heavy cattle; ſometimes ewes with lamb are bought, with the object of fatting both ewe and lamb in the ſucceeding ſummer.

Both

Both cattle and ſheep are not only fatted by profeſſed graziers, but frequently by the dairymen, and ſometimes to the injury of the dairy, particularly when ſheep, by being kept on too late in the ſpring, injure the hay crop, or prevent the cows from being turned early to graſs.

Sheep.—Many ſheep are bred in this diſtrict, part on a folding ſyſtem, and part purpoſely for fatting. The number of ſheep folded in this diſtrict has certainly decreaſed, and perhaps a ſtill greater decreaſe will and ought to take place on land which can be better appropriated than under that ſyſtem.

The decreaſe of the number of ſheep bred in many parts of the kingdom, and the vaſt increaſe in the conſumption of mutton, ſeems a paradox to be accounted for in no other way, than by ſuppoſing the animal to be killed at an earlier age, and this certainly is the fact. Sheep were *formerly* not thought *eatable* till four, five, or even ſix years old; at this time, three-fourths of the mutton is killed at two years old. The old ſorts of ſheep did not come early enough to perfection to do this, and new ſorts were neceſſary; this laid the foundation of that ſpirit of ſheep-breeding, which has been carried to a pitch, particularly in Leiceſterſhire, almoſt beyond credibility: and this ſpirit (though ſometimes wrong applied, and particularly in the South-eaſt part of this diſtrict) has enabled the kingdom to find a ſupply for the increaſing demand of mutton.

It has been ſaid already, in the deſcription of the South-eaſt diſtrict, that two kinds of ſheep are neceſſary for the two diſtinct purpoſes of folding and fatting, viz. a kind to walk, and a kind to ſtand ſtill; the latter, which is the kind adapted to come early to perfection, are particularly proper for this country, where, in ſome parts, the land is adapted to a convertible ſyſtem of corn and graſs; and in others, there is a proper mixture of arable and paſture land. And this practice of breeding ſheep, purpoſely for fatting at an early age, ſeems to gain ground, particularly ſince the Leiceſterſhire ſheep, which are peculiarly adapted to that purpoſe, have been introduced.

[*Here follow ſome reflections of the ingenious author, tending to inforce his opinion laſt expreſſed, but which muſt be omitted for the ſake of brevity.* For the ſame reaſon muſt be omitted other valuable reflections in this diſtrict, under the different heads of *Tillage*, *Manures*, *Implements*, and *Seaſons*; the latter, as being conſiderably different in the two diſtricts; but all of which are well worth peruſal by the inquiſitive and intelligent farmer.]

WASTE LANDS.

Although the greateſt part of this diſtrict appears to be incloſed, and it contains no very extenſive entire tracts of waſte land, yet there are numerous ſmall commons in almoſt every part of it, in a very neglected, unimproved ſtate: and there are many

pariſhes, in which there are ſtill common-fields; and thoſe in a very bad ſtate of huſbandry.

The greater part of the common-fields lie on the ſtone-braſh land, on the North-weſt ſide of the county; and others in the deep, ſtrong land, from Calne by Broadtown, towards Highworth; but the commons lie chiefly in a North-eaſt line from Weſtbury to Cricklade, through the centre of the richeſt land in the diſtrict.

There are numerous inſtances, in which the common-field arable land lets for leſs than half the price of the incloſed arable adjoining; and the commons are very ſeldom reckoned worth any thing, in valuing any eſtate that has a right on them.

Although great part of this diſtrict appears to have been, at no very remote period, in a commonable ſtate; and although the improvement on the lands, heretofore incloſed, has been ſo very great, the progreſs of incloſure therein has been very ſlow during the laſt fifty years. The reaſon ſeems to have been, the very great difficulty and expence of making new roads in a country naturally wet and deep, and where the old publick roads were, till within the laſt few years, almoſt impaſſable. But this reaſon having now nearly ceaſed, by the introduction of ſeveral new turnpike-roads through the diſtrict, and by the ſpirit which now ſo generally prevails of making good the approaches to them from the interior villages, it is to be hoped, that

ſo great an improvement as that of incloſing and cultivating the commonable lands, will no longer be neglected.

The tracts of commons which are mentioned to lie in a line from Weſtbury towards Cricklade, are detached and diſperſed in numerous pieces, and belong to a variety of pariſhes, but the whole content of them is ſuppoſed to exceed three thouſand acres. And though the greater part of them at preſent turn to very little account, not only from the wet, rotten ſtate in which they lie every winter, but from the unprofitable kind of ſtock that are uſually kept on them, they want only incloſing and draining, to make them as good paſture land as many of the ſurrounding incloſures.

The improvement by incloſing them might, in many inſtances, be taken at from fifteen to twenty ſhillings per acre; and, indeed, incloſures of commons of this deſcription frequently improve, not only the commons themſelves, but alſo the *adjoining incloſures, by preventing the occupiers from continually mowing the latter, and carrying off the hay.*

There are a few heaths in this diſtrict, (and but a few) which might be improved by ploughing. There being but few inſtances where there are alterative manures, ſuch as lime, chalk, marle, &c. which are properly adapted to them, to be got very near; the greater part of them, particularly thoſe about Bradon Foreſt, would, in general, pay better for planting.

Very

Very great improvements might be made, by incloſing the common-fields in this diſtrict; and particularly thoſe which are in need of draining, ſuch as thoſe in the deep, cold vein of land about Broadtown, Elcombe, &c. many of which would be much more valuable, if turned into paſture land, than in their preſent arable ſtate. Even the common-fields in that part of this diſtrict, which is apparently the drieſt, viz. the North-weſt part, are ſo much in need of draining, that few of them are ſafe for ſheep in a wet autumn. This can only be remedied by incloſure; and no greater proof can be adduced of the neceſſity of it.

In fact, the open lands of this diſtrict, ſmall as they appear to be, when compared with the land already incloſed, yet, being capable of ſuch vaſt amendment by dividing and draining, hold out a ſource of future improvement to the landholders in this diſtrict, of many thouſands a year; for the neglect of which, there ſeems, at preſent, very few reaſons. Thoſe few will be afterwards ſtated, and attempted to be obviated.

With reſpect to the decreaſe of population, already felt in conſequence of former incloſures, or to be apprehended from future ones, it has been already obſerved, in our remarks reſpecting the South-eaſt diſtrict of the county, that the extinction of lifehold tenures, which has been gradually taking place for the laſt century, tends, undoubtedly,

edly, to decreaſe the number of farmers; and that though this event may be ſometimes haſtened by incloſures, yet that it may, and frequently does, take place without them. But in this part of the county, where land is in general ſo valuable, the effect of conſolidating ſmall farms will not be ſo viſible as in South-Wiltſhire. The vaſt improvements made on the lands in conſequence of incloſure, particularly by draining, and by the laying down to paſture ſuch land as was too wet for arable, has increaſed the rental of the country ſo much, that there will, probably, be always land ſufficient for the occupation of the inhabitants of it.

It has been already ſtated, that there are a great number of ſmall freeholders in this part of the county; and as theſe diviſions of property have generally happened in the incloſed parts, it has tended to retain thoſe inhabitants, who would have been otherwiſe driven out by the extinction of life-hold tenures.

In many parts of the diſtrict that are ſtill in a common-field ſtate, the landholders would be much greater gainers by an incloſure, than it is poſſible they can in many parts of the South-eaſt diſtrict of the county; as there are ſo many parts of the land that, when incloſed, may be applied to the purpoſes of a ſmall farm, without the neceſſity of keeping a flock of ſheep to manure it; viz. by keeping that part which will be neceſſary to remain in arable,

arable, on a turnip ſyſtem, either for feeding cattle or ſheep, or for wintering ſheep for the down farmers; by laying down the wet parts to graſs, either for the dairy or for feeding; and by applying the ſand lands on a garden ſyſtem, to raiſing eſculent vegetables. While on the thinner and poorer parts of the North-weſt part of the county, which muſt neceſſarily continue in an arable ſtate, the improvement to be obtained from incloſures muſt be derived from putting the occupation into *fewer hands*, and making farms of ſuch a ſize as can be managed to the greateſt advantage of the tenant, the landlord, and the community.

With reſpect to the decreaſe of *labourers* in this part of the county, there is very little to be apprehended from incloſures. So little manual labour is done to the unincloſed land, in its preſent ſtate, that every alteration that has improvement for its object, muſt increaſe manual labour, and of courſe, the number of labourers.

The fencing and draining the land, and making and keeping good roads, in a country naturally ſo deep and wet, will be a perpetual ſource of employ for labourers.

Theſe are the improvements, which have already ſo wonderfully increaſed the value of land in this diſtrict; and as ſo much remains to be done, there will probably be, in future, more complaint for want of labourers, than for want of work to employ them

them in, eſpecially in the neighbourhood of the manufacturing towns.

DRAINING.

The uſe of covered drains has been long known in many parts of this diſtrict.

They have been made in different modes with turf, with wood, with ſtone, but chiefly with the latter, on account of the facility of getting it, there being but few parts without ſtone of ſome kind or other, within a moderate diſtance.

Stone drains.—The ſtone of the corn grate rock, which compoſes the under ſtratum of ſo large a portion of this diſtrict, is of a peculiarly favourable flat ſhape for under-drains; and no land requires it more than the vein of cold clay, which ſo frequently accompanies this rock. Much of this kind of land has been ſo drained, and much remains yet to be done. The drains of this ſtone have been, in general, made about ten or twelve inches wide, with perpendicular ſides. In ſome caſes, the ſtones are ſo placed, as to leave a water-courſe at bottom, by ſetting two flat ſtones triangularly to meet at the points; in others, and perhaps a better way, by covering the bottom with a flat ſtone, and then putting three other flat ſtones upright, leaving the water to find its own way between them; in both caſes,

caſes, filling up the reſidue of the drain to the top, or near the top, with looſe ſtones; but the fault, in the greater part of the under-drains that have been made, has been, that they have not been made deep enough to anſwer the purpoſe of draining the ground effectually; the object of them having been oftener directed to drain the water from the ſurface, (where perhaps it does in fact but little injury) inſtead of draining off the land ſprings, which are in, or run upon, the under-ſtratum, and which are poiſon to vegetation.

In ſome few parts of this diſtrict, where ſtones are ſcarce, and thoſe not of a ſhape well-adapted to the purpoſe, particularly about Steeple-Aſhton, much ingenuity is ſhewn in the different methods of draining which have been introduced.

Turf drains.—In ſome inſtances, they have drained land to the depth of three or four feet, by firſt digging a ſpit of earth out, and then boring out the ground with a three-inch borer, ſo as to form a pipe of the depth required, and only three inches wide.

If the ſoil be looſe, they have drawn in ſmall buſhes or boughs, ſo as to keep it from running together; but if ſtrong and tough, and where the pipe is not required to be ſo deep, they have left the pipe open, turning down the firſt ſpit upon the ſhoulders of the pipe, with the graſs ſide underneath.

In other caſes, where only ſmall round ſtones could be got, and thoſe not plentifully, they made the

the drain taper, from nine inches at top, to nothing at the bottom, and perhaps three feet deep, and filled them up, by dropping firſt the ſmalleſt ſtones, and then the large ones, to near the top, and then finiſhing it by placing a thin turf on the ſtones.

Gravel drains.—Where gravel is more plentiful than ſtones, ſcreened or waſhed gravel has been found to anſwer the purpoſe very well.

In all caſes, the general opinion ſeems to be, that thoſe drains have laſted longeſt which have the leaſt, or rather the narroweſt, water-way left at bottom; as, in that caſe, the force of the water has been ſufficient to clear away any little obſtacles that might chance to get in.

BENEFICIAL PRACTICES.

Dairy ſyſtem.—The ſyſtem of making cheeſe, as managed in North-Wiltſhire, would certainly be of the greateſt ſervice in many parts of the kingdom, if it could be introduced into them; and the production of good cheeſe, in this diſtrict, from land totally diſſimilar, as ſtated in the preceding obſervations, ſhews that the goodneſs of this article does not depend ſo much on ſoils or ſituations, as is generally imagined. Indeed it is well known, that the fame of this diſtrict for good cheeſe is not very ancient. The circumſtance of its being ſold for

Glouceſter

Glouceſter cheeſe till within theſe few years, ſhews that Glouceſterſhire had the *name* firſt; though the quantity now made in that county is far leſs than what is made in this diſtrict, according to the report of Mr. Marſhall, who ſpent much time in both diſtricts, for the purpoſe of examining into this particular branch of rural œconomy.

Indeed, many of the beſt dairy farms in the diſtrict appear, as has been already ſtated, to have been in an unincloſed ſtate of arable, at no very remote period of antiquity; and many of the farm-houſes and buildings appear to be of modern erection.

The convenient ſituation of the houſes and buildings of a great part of the dairy farms of this diſtrict, ſhews that many exchanges in property muſt have taken place before this deſirable circumſtance could have been obtained.—An object well worth imitation, in all countries where it can poſſibly be adopted; and, perhaps, there is no *ſingle* local circumſtance, that contributes ſo much to the excellence of the dairy ſyſtem of this diſtrict, as the general convenient ſituation of the lands round the houſes, as a common centre; ſo that the dairy-men are able to drive all their cows home to milking, and thereby to put all their milk together of an equal temperature; and by beginning their work much earlier in the morning, they can make cheeſe twice a-day during the whole ſeaſon.

This

This is impoſſible to be done, where ſervants muſt be ſent to milk cows in detached and diſtant incloſures; as is too frequently the caſe in many dairy countries, and particularly in the county of Somerſet.

Good butter is made in every part of the kingdom, becauſe the proceſs is ſimple, and known every where; and if the ſame methods were practiſed in making cheeſe in other countries, as are uſed in this, there ſeems no good reaſon why cheeſe of equal goodneſs might not be made in many other countries.

As Mr. Marſhall has ſo fully detailed the methods uſed by the North-Wiltſhire dairy-women, it is unneceſſary to repeat them here.

But it may be proper to add one general remark on making cheeſe; viz. that there are few countries, which are famous *for bad cheeſe*, where the reaſon may not be traced much oftener to a fundamental fault in the proceſs of making, and particularly in that eſſential article the rennet, than to any particular local fault of the ſoil or ſituation, or even to want of care and attention in the dairy-women.

Draining of land.—Another practice, in this diſtrict, is the attention that has, of late years, been paid to the draining of land.

The great object of manure is to warm and excite a fermentation in the land; but the land muſt firſt be in a ſtate to receive it, or it is uſeleſs to put it on.

Manure

Manure may almoſt as well be thrown into the water itſelf, as put upon land ſo ſoaked and poiſoned with water, as to be incapable of being warmed by the manure.

This improvement, which may be called the baſis of all other improvements, in a wet cold country, can never be too much recommended, and is well worthy of imitation in many other counties; in which, though quite as neceſſary as in this diſtrict, no kind of attention is paid to it.

IMPROVEMENTS FOR CONSIDERATION.

Breed of Cows.—THE management of the dairy part of this diſtrict has been a ſource of ſo much profit, as well as credit, to the county, that it certainly muſt, in its principle, be right; and while there is ſo much to admire, it would be invidious to cavil at trifles. Whether the dairy-men are wrong or right in their choice of the kind of cows, will, probably, be hereafter determined. If they could buy another kind of cows, *immediately fit for the pail*, as eaſily as they can the long-horned ones, it is probable that kind might not be ſo univerſal; but it is clear, that they think they get *nothing* by *breeding* their own ſtock, and perhaps they may *think right*.

The cows they buy are bred in a country whoſe cheeſe does not ſtand ſo high in repute as that of North-

North-Wilts, and of courſe may be bred cheaper than they could breed them at home; but if this argument be well founded, are the North-Wiltſhire dairy-men right in fatting calves? Does not the fatting of calves conſume as much milk as the weaning of calves? And would not the additional cheeſe they could make, if their cows dropt in March or April, inſtead of January or February, pay as much or more than fat calves; without reckoning the injury done to the conſtitution of the cows, by calving repeatedly in the winter. Undoubtedly, nothing has contributed ſo much to keep up the high price of cheeſe and butter, as the amazing increaſe, of late years, in the quantity of winter veal ſold, not only in the London market, but in almoſt all the towns in the kingdom.

North-Wiltſhire muſt ſend its veal to the London market, on the ſame terms as other counties within the ſame diſtance can do; while that veal is made at the loſs of cheeſe, which would yield 20 or 30 per cent. more than the average price of cheeſe made in thoſe counties. This is the reaſon given, why North-Wiltſhire dairy-men wean ſo few calves, and why they make ſo little butter for ſale. The ſame reaſon ſeems to apply againſt their fatting calves.

But this is meant as a hint for conſideration, rather than an object of cenſure.

Arable management.—As to the management of arable land, North-Wiltſhire, certainly, does not ſhine.

It

It is a happy thing for the land-owners of the diſtrict, that the predilection of the occupiers is ſo ſtrong for paſture land. Land ſo cold and ſo wet in its nature, as a great part of the vale land of this diſtrict, can never be *permanently* improved while under the plough. *The bare mention of a known fact, that the comparative value of land of equal native goodneſs, in a paſture or an arable ſtate, is uſually as two to one, is a ſufficient proof of this.* The lands that are cold and wet ſhould be laid down to graſs, and drained; and this would increaſe the quantity of manure for the warm and dry lands, which would be very profitably kept in tillage.

This particularly applies to all the deep, cold ſoils, between Chippenham and Wootten-Baſſet.

As to the ſtone-braſh land, in the North-weſt part of the diſtrict, it has been already obſerved, that the general ſyſtem of huſbandry, and particularly the almoſt entire dependance on the ſheep-fold for manure, is not ſtrictly reconcileable to reaſon, in many parts of this diſtrict. All the light and dry parts, which require treading to make them cloſer, are undoubtedly proper for ſheep-folding; but many of the wet cold parts are not at all calculated for that ſyſtem. Thoſe of the latter deſcription are by no means fit or ſafe for ſheep without draining; and as that is ſeldom practicable to any extent, in an arable ſtate, many of them ſhould be laid down as paſture. Thoſe parts which are already.

ready laid down, are remarkably ſweet-feeding ground, and in that ſtate of huſbandry the country would ſtill be calculated for feeding ſheep, but not on a folding ſyſtem. The long-wooled ſheep, either the Cotſwold or the Leiceſterſhire, are peculiarly proper for ſuch kind of land, where a part might be always in paſture, and the arable land kept in that kind of huſbandry that would produce green winter crops.

In thoſe parts of the country where the land is light and dry, the ſheep-fold ſyſtem might ſtill be uſed. The large farmers would be much better able to ſupport a flock than they now are, by laying down the wet parts of their land to paſture, and ſowing ſainfoin on the dry and poor parts; and the ſmall farmers, whoſe arable land required folding, would find their account much more in taking in ſheep from the down farms to eat their green winter food, than by keeping ſmall flocks of their own.

It has been already remarked, that notwithſtanding the dairy ſyſtem is ſo well underſtood, and is ſo very profitable in this diſtrict, there is, nevertheleſs, a ſtrong propenſity, in many parts of it, to grazing cattle. It is undoubtedly for the intereſt of the community, that cattle ſhould be grazed ſomewhere; but it alſo is their intereſt, and ſtill more ſo the intereſt of every individual, to apply his land to the purpoſes for which nature deſigned it. Nature never deſigned many parts of this diſtrict, and

particularly

particularly the cold wet parts, where oak timber is the natural weed of the country, for grazing. On thoſe ſoils the *ſummer* is too ſhort for that purpoſe, and they never can be applied to ſo great advantage, as that of keeping dairy cows.

PRICE OF PROVISIONS.

The prices of proviſions in Wiltſhire, and particularly in the South-eaſt part of the county, when compared with the other Weſtern counties, may be ſaid to be high.

As the South-eaſt, or down part, of the county produces very few articles of human food, except wheat, *that* is the only article which can be ſaid to be cheap in that part; and ſo great an influence have the Bath and London markets on the price of other proviſions, which are raiſed in the North and Weſt parts of the county, that butcher's meat, butter, and cheeſe, particularly the two former, are uſually at leaſt ten per cent. dearer on an average at Sarum, than at Wells, or Shepton-Mallet, in Somerſetſhire, and ſometimes even twenty per cent. higher than at Exeter; and as theſe cauſes are likely to be permanent, the effects may be expected to be ſo likewiſe.

The certain demand for, and conſequently the high price of, the produce of this county, is undoubtedly,

doubtedly, as has been ſaid before, an advantage to to the landholders of it; but it is in another ſenſe a diſadvantage to them, (viz.) in the article of labourers; although the wages of the labourers have increaſed conſiderably within theſe few years, yet it is now barely ſufficient for their ſubſiſtence, and a few days illneſs brings them to the pariſh.

The pariſh rates are of courſe very high, and daily increaſing; and if the ſyſtem newly adopted in the clothing manufactories, of ſpinning the wool in the towns by machines, which uſed to be done by women and children in the villages, becomes univerſal, the price of labour muſt ſtill be very conſiderably increaſed.

Another great cauſe of the diſtreſs of the poor, in many parts of this county, and particularly on the downs, is the ſcarcity of fuel.

Coals are already advanced very conſiderably; and let the price of carriage be ever ſo much reduced by good roads, or even by canals, coals muſt ſtill be dear in many parts of the county.

Wood is the natural, and ſhould be the depending, fuel of a great part of Wiltſhire.

How neceſſary, therefore, is it for thoſe who have woods to preſerve them, and of thoſe who have not, to plant ſome? But as this muſt neceſſarily be a work of time, it may be uſeful to hint, that for a quicker remedy of this alarming inconvenience, a few acres of furze might be preſerved from

from the plough, in thoſe pariſhes where it already grows, and ſown in thoſe where there is none.*

This might be ſold for fuel, to thoſe who could afford to buy, and given, inſtead of pariſh relief, to thoſe who could not. Thoſe who have hearts to feel for the diſtreſſes of the poor would, by this expedient, gratify their humanity; and thoſe (if there are any ſuch) who feel only for the preſervation of the hedges, would find this a more effectual way to prevent wood-ſtealing, than a whip or a priſon.

It is a melancholy fact, that without any particular habits of oppreſſion on the part of the farmers, or diſſoluteneſs on the part of the poor, the labourers of many parts of this county, and particularly of South-Wiltſhire, may be truly ſaid to be at this time in a wretched ſituation.

The dearneſs of proviſion, the ſcarcity of fuel, and above all, the failure of ſpinning work for the women and children, have put it almoſt out of the power of the village poor to live by their induſtry; and have, unfortunately, broken that independant

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* Furze is a very tender plant when young, and therefore ſhould not be ſown till late in April, or early in May.

It may be ſown either alone, or with a crop of barley, white oats, or buck-wheat; and if it be preſerved from cattle, will be fit to cut in three or four years.

It likes a *dry* ſituation, and if there be a *depth* of *ſoil*, it does not ſignify how poor it is.

ſpirit, which, in a very peculiar degree, formerly kept a Wiltſhire labourer from the pariſh books.

The farmers complain, and with reaſon, that the labourers do leſs work than formerly; when, in fact, the labourers are not able to work as they did at a time when they lived better.

There is no neceſſity of heightening this melancholy picture, every landholder of the county knows it too well; and the reſident magiſtrates, in particular, have it daily in their view; and, to their credit be it ſpoken, the landholders are uſing every exertion, by premiums, bounties, and other indulgencies, to introduce new kinds of employ for the poor, to ſupply the loſs of ſpinning wool for the cloth manufacturers, or to induce the manufacturers ſtill to bring them wool, by giving bounties equal to what they can ſave by ſpinning it at home by machines.

MANUFACTURES.

The extent of commerce, or rather of manufactures, in the county of Wilts, is very great indeed; but the woollen manufactory is, by far, the moſt general.

Saliſbury manufactures great quantities of flannels, and fancy woollens, and has a conſiderable manufactory of cutlery and ſteel goods. Wilton, a large

a large manufactory of carpets, and fancy woollens. Devizes, a conſiderable manufactory chiefly of fancy woollens. Bradford, Trowbridge, Warminſter, Weſtbury, and all the adjacent towns and villages, from Chippenham to Heyteſbury incluſive, carry on moſt extenſive manufactories of woollen goods, a great part of which is ſuperfine broad-cloths, kerſeymeres, and fancy cloths.

At Mere, and its neighbourhood, there is a manufactory of linen, chiefly dowlas and bed-ticks.

At Aldbourn, a manufactory of cotton goods, chiefly fuſtians and thickſets.

At Swindon, and its neighbourhood, a conſiderble manufactory of gloves.

Indeed, there is ſcarcely a town in the county, that has not a manufacture of ſome kind or other.

The vaſt population of the county of Wilts, occaſioned by their various and extenſive manufactures, and the daily increaſe of population of Bath and Briſtol, occaſion a never-failing demand for all the productions of the land of this county.

The wheat, and in particular the barley, the cheeſe, and butter, and every other neceſſary of human food, are ſure to find a market.

Theſe are undoubtedly advantages, and very great ones, to the landholders of this county in general; but, perhaps, more to the landholders at a few miles diſtance from the ſeat of manufactures, than to thoſe immediately on the ſpot.

It

It ſeems to be allowed, even by the manufacturers themſelves, that although the nation derives an ineſtimable advantage from manufacture, in a general and commercial point of view, and though the landholders throughout the kingdom have been able to advance the rents of their lands very conſiderably, in conſequence of an increaſed conſumption of its produce, yet the manufactures are not always bleſſings to the landed intereſt of the county where they are *immediately ſituated.*

The advantage ariſing to the landed intereſt in the immediate neighbourhood of large manufactories, is an increaſed demand, and, of courſe, an increaſed price for the produce of the land. But this extends only to a few articles of daily indiſpenſable conſumption, ſuch as milk, butter, poultry, hay, ſtraw, &c. In the heavy neceſſaries of life, ſuch as wheat, barley, oats, cheeſe, butcher's meat, &c. the advantages are ſhared by the landholders at a diſtance.

The diſadvantage to the landholders on the ſpot, is an increaſed population, and that of the moſt undeſirable kind, viz. "labouring poor;" who, in times of a quick trade, raiſe the price of labour almoſt beyond the reach of a farmer, and when trade in general, or that ſingle branch to which they have been brought up, fails, fall a burden on the poor rates, greater than the land is well able to bear. In the woollen manufactories of this diſtrict,

this

this has long been the complaint of the landholders, and yet the manufacturers have hitherto made them in ſome degree a compenſation, by the employ that they have furniſhed in ſpinning work to the women and children of the labourers in agriculture.

But unfortunately for the landholders, even this compenſation ſeems likely ſoon to be at an end, by the general introduction of machines, to ſupply the place of manual labour, whereby all thoſe parts of the manufactory, that have hitherto been done in the country villages, will be done at the immediate reſidence of the manufacturers.

The conſequence to the landholders will be, that the families of the labouring poor muſt fall on the poor rates, or the price of labour muſt be advanced, equal to the loſs of the former earnings of the poor.

The conſequences to the manufacturers themſelves are not yet known. How far the general introduction of machines may affect this part of the kingdom, or the kingdom in general, by making thoſe manufactories "moveable" that have hitherto been "fixtures," time muſt determine.

OBSTACLES TO IMPROVEMENT.

THERE are *two* obſtacles to improvements in agriculture, neceſſary to be particularly noticed here; viz. 1ſt. The frequency of ſmall water-mills,

as

as particularly injurious to water-meadows; and, 2dly. The difficulties thrown in the way of ſmall incloſures of commonable lands, by the expence of an act of parliament; the firſt applying more particularly to the peculiar huſbandry of Wiltſhire, and the ſecond being equally an obſtacle to improvements in every other part of the kingdom, where there are lands ſtill unincloſed.

Water-mills, which are very numerous in Wiltſhire, and particularly in the South-eaſt diſtrict, are, in many inſtances, exceedingly injurious to water-meadows.

It was formerly thought neceſſary, that every manor, whoſe ſituation permitted it, ſhould have its own mill, for the conveniency of the tenants to grind their corn; and a great part of theſe mills remain at this day, although few people now grind their own corn, and although, by the improved mechaniſm of mills, one can now do the work that three or four did formerly.

Between Warminſter and Saliſbury, a diſtance of about twenty miles, there are nearly twenty water-mills; although one-third of the number (if well conſtructed) would be more than ſufficient to do all the work of the country. Many of theſe mills are very injurious to the water-meadows below them, and frequently prevent the making new ones. And the ſame inconvenience exiſts on the rivers in general thoughout the county, and particularly in the South-eaſt diſtrict.

To

To remedy this, in all acts of parliament for inclosures, where there is a possibility of *making water-meadows*, or of *improving those already made*, power should be given to the commissioners to take from the mills, at stated times, *all*, or *such part*, of the water as should be absolutely necessary for the water-meadows below; and where such mills are really unnecessary, to direct them to be taken away. Such commissioners being at the same time impowered to fix an annual rent-charge, to be paid to the owners of such mills so injured, by the owners of the land so benefited, as is done in the case of canals, subject to the like appeal as is allowed in canal acts.

In parts of the country which are already inclosed, disputes frequently happen between owners of mills and owners of water-meadows, and which are almost impossible to be explained or understood in a court of justice.

Perhaps a mode might be practicable of empowering justices of the peace, at their quarter-sessions, to order a reference to men of judgment in the neighbourhood, and to make their award matter of record to bind the parties.

The other obstacle to improvements in agriculculture, is the impediment thrown in the way of inclosures of commonable lands, particularly where the quantity of land is small, or the number of proprietors large, by the difficulty and expence of procuring acts of parliament for that purpose.

It has been already remarked, that there are a great number of common-fields ſtill remaining in Wiltſhire, particularly in the South-eaſt part of the county; and that in the North-weſt part, there are ſtill many open common-paſtures. Theſe are undoubtedly obſtacles to all improvements in agriculture, and ought to be divided without delay.

There have been many common-fields lately incloſed in the South-eaſt part of the county; but in the North-weſt part, incloſures have gone on very ſlowly for ſome years paſt. One reaſon has already been given for this, viz. the badneſs of the roads, and the difficulty and expence of making ſuch new ones, as would be neceſſary in caſe of an incloſure. This impediment will ſoon be removed in North-Wiltſhire; and good roads will enable the owners of the adjoining commonable land to make the moſt of it. And there is not a doubt, but that the greateſt part of the commonable lands in the county would ſoon be divided, provided the *legal difficulties* which ſtand in the way of incloſures could be removed.

It is well known, that no commonable land, *be it ever ſo ſmall*, can be incloſed or divided without act of parliament, unleſs by the conſent of *all* parties. That conſent is always difficult to be got, and ſometimes (particularly where ſome of the proprietors are *minors*, or under any other *legal diſability*) impoſſible. An act of parliament is then the only reſort.

reſort. But it frequently happens, that the quantity of open land belonging to one manor, is inſufficient to afford an expence of, perhaps, near 300l. for an act, beſides the ſubſequent expence of working a commiſſion. And although the landowners of *two or more* manors might join in one act, yet it is a difficult matter to get them to agree on the terms of it; eſpecially when, as is often the caſe, their intereſt, or at leaſt their claims, on the commonable lands, claſh and interfere with each other.

The expences of an act of parliament for an incloſure, are not entirely occaſioned by the *fees* of the two houſes, but by the delay and uncertainty of attendances in London, owing to the multifarious and increaſing buſineſs of parliament; and which an annihilation, or even a reduction of thoſe fees would tend much more to increaſe than prevent.

Remedy propoſed.—But there ſeems to be a mode by which this difficulty might be, in a great meaſure, obviated, and *ſmall* common-fields or commons divided at a trifling expence, viz. by empowering the juſtices of the peace to receive applications for that purpoſe at the quarter-ſeſſions; and particularly in thoſe caſes where a very *great majority* of the proprietors were conſenting, or where the objections were chiefly founded on *legal diſability*.

Notice of the propoſed application to the juſtices might be given (in the way now preſcribed by parliament)

ment) in Auguſt or September. The bill of the propoſed regulations of the incloſure might be delivered at the Michaelmas ſeſſions, and made public immediately after. Objections might be heard at the Epiphany ſeſſion, and the bench might then determine for or againſt an incloſure.

Thoſe who doubt the competency of a court of quarter-ſeſſions to do this buſineſs properly, will conſider that the local information, ſo eſſential to the proper framing an incloſure bill, may be obtained, and the objections of parties aggrieved may be inveſtigated, not only much *cheaper*, but much *better* on the ſpot, than can poſſibly be done before parliament. And thoſe who think it would be giving *too much power* to juſtices of the peace, will conſider, that they have already a greater power than this, viz. the hearing and determining appeals that may come from parties aggrieved, under incloſure acts paſſed by parliament.

And, indeed, if it were thought neceſſary, all poſſibility of partiality might be prevented by preſcribed rules and regulations, as to the *proportional majority* of conſenting proprietors, abſolutely neceſſary to the paſſing an order for an incloſure.

It may, perhaps, be expected by ſome, that in ſpeaking of obſtacles to improvements in agriculture, the payment of tythes in kind ſhould be mentioned, and ſome plan propoſed for its abolition. But it is not to be expected that ſo great an alteration

tion in the policy of the kingdom, involving ſo many valuable intereſts and important conſequences, can be effected from the crude and undigeſted ſchemes of an humble individual. The Board of Agriculture may, perhaps, hereafter be able, from the combined information that will be collected by them, to determine whether any thing can be done in this important buſineſs, and what meaſures are the moſt likely to give general ſatisfaction to the parties intereſted.

But however the payment of tythes, in kind, may be an obſtacle to the agriculture of the kingdom in general, it is but common juſtice to the clergy of the *county of Wilts*, to remark, that *ſo far as reſpects them*, that obſtacle can hardly be ſaid to exiſt. In many of the late incloſures, commutations, either in land or money, have been accepted, and the pariſhes diſcharged of tythes. And where tythes are ſtill due, it is a fact, that there is ſcarcely one clergyman in twenty throughout the county, who takes them up in kind; although the laymen, who are in poſſeſſion of tythes, too often ſet them the example of refuſing to compound them at any price whatever.

Article VIII.

Extracts from a "General View of the Agriculture of the county of Gloucester; *with obſervations on the Means of its Improvement; drawn up for the conſideration of the Board of Agriculture and Internal Improvement."*

[By George Turner, of Dowdeſwell.]

THE county of Glouceſter contains, according to Bowen's map, about eight hundred thouſand acres of land.

In deſcribing the agricultural ſtate of the county, it will be neceſſary to notice ſeparately, the diſtricts differing in ſoil and management. I begin with the

COTSWOLD HILLS.

The Soil—is various; the greater part, what is here termed "ſtone braſh," a loam intermixed with ſtones, on a ſubſoil of calcareous rubble or rock: the average depth of ploughing not much exceeding four inches: there is however ſome quantity of ſtiff ſour land interſperſed on theſe hills, many farms and one or two whole pariſhes are chiefly of that nature. Near Fairford and Cirenceſter the ſoil is richer and deeper; particularly about the former a deep and ſandy loam prevails, producing great crops in a favourable time, but apt to burn and parch

parch up in dry ſeaſons; at which times they likewiſe labour under great inconveniencies for want of water, with which the greater part of theſe hills is abundantly ſupplied.

The Properties are moſtly large, and the occupations likewiſe; there are however ſome exceptions in both; but it is the opinion of experienced men, that farms of from 200 to 500 acres, can be managed with much greater advantage to the farmer and the publick, than ſmaller ones.

In the vallies, and where the land is of a ſufficient ſtaple for permanent meadow and paſture, it is moſtly in that ſtate. Sheep and cow downs are likewiſe frequently met with; but the quantity of land thus employed, bears but a ſmall proportion to what is occaſionally under the plough; ſome few pariſhes on the ſides of the hills, however, are an exception to this rule, in which perhaps half the land is meadow and paſture, worth from 20s. to 30s. per acre. In theſe ſituations, dairying is moſtly followed, in preference to grazing; the ſort of cows chiefly Glouceſterſhire, frequently croſſed and improved from other breeds.* Moſt farmers dairy a little for home conſumption; and though the nature of the ſoil renders ſheep the live ſtock chiefly to be attended to, yet a ſufficient quantity of cattle

* With what breeds, chiefly; and what particular one is ſuppoſed to make the greateſt improvement?

generally

generally is, and always ought to be, intermixed with them to improve the paſtures, and make the moſt of the keep; of theſe not ſo many are bred as formerly, Glouceſter market weekly affording great choice from Herefordſhire, Wales and Somerſetſhire; of theſe, the Glamorgan and Somerſet appear moſt eligible as working cattle for the hills, being active in harneſs, and when turned off, feeding in leſs time than the larger breed of Herefordſhire. In ſtall-feeding, hay, chaff, barleymeal, oats and bran,* are the articles of food chiefly uſed. The ſmaller Welch breeds of cattle, where grazing is the only object, are frequently bought in in winter or early in ſpring, and fatted in the courſe of the ſummer, ſo as to go off between Michaelmas and Chriſtmas with little or no hay, which, in a country where it is ſo ſcarce and valuable, is a material object.

The native *ſheep* of theſe hills in their unimproved ſtate, was a ſmall light carcaſſed, polled animal, bearing in the memory of an experienced

* If a mill could be invented to grind wheat, either by the wind or with a horſe, cheap and durable, it would enable the farmer by mealing his own grain, to obtain a quantity of excellent food for his fatting ſtock, to the great enrichment of the land. The great objection to the ſteel mills hitherto invented, is, that the corn muſt be in the very beſt order, otherwiſe it clogs and will not grind properly. To make a machine of this ſort complete and generally uſeful, there muſt probably be ſome ingenious contrivance to dry and harden the corn if neceſſary.

agriculturiſt

agriculturiſt now living, a fleece of fine wool of about 3lb. weight, but lighter and finer before that period. They were cotted in former times, but that practice has not been in uſe ſince the remembrance of the perſon alluded to, from which circumſtances it is very probable that the aſſertions of ancient authors, that the Spaniards procured their breed of fine-woolled ſheep from the Cotſwold Hills, are founded in fact, though contradicted by ſome modern writers. Since that time the incloſures and better management taking place, and good rams being procured from Warwickſhire and other counties, the Cotſwold ſheep have conſiderably improved in weight of carcaſe and quantity of wool, which, though coarſer than formerly, is in very great eſteem as combing wool, being of a good length and very mellow quality. The faſhionable Leiceſter ſheep have been occaſionally introduced into this diſtrict, and, for a croſs or two when choſen with judgment, have been found to improve the breed in ſhape and diſpoſition to fatten, but where perſiſted in, they have greatly reduced the carcaſe in ſize, and conſiderably leſſened the wool in quality and quantity: nor is this reduction in ſize recompenſed by their requiring leſs food, or fattening quicker than the other breeds, qualities which have been ſo ſtrongly inſiſted on, and on which the merit of the breed has been chiefly founded; on the contrary, experienced graziers in

this diſtrict, who have paid particular attention to them, are convinced, that they require full as much time and room as the larger native breed. I ſay nothing of the comparative value of the carcaſes to the butcher, nor of the eſtimation the meat of the different breeds is held in by the conſumer; the moſt ſatisfactory intelligence on theſe heads may be obtained in Smithfield market.

In the common practice of the diſtrict the wether ſheep are fatted off from two to three years old. The average weight of carcaſes, ewe 22lb. wether 26lb. per quarter; fleeces on an average of the whole flock run four to the tod of 28lb. Wool ſold this ſeaſon [1794] from 14s. to 24s. per tod. I underſtood at this time it is not worth more than 18s.

Wether ſheep, by keeping them another year, are frequently brought to weigh from 40 to 50lb. the quarter.

Probably no part of the kingdom has been more improved within the laſt forty years, than the Cotſwold Hills. The firſt incloſures are about that ſtanding; but the greater part are of a later date. Three pariſhes are now incloſing; and out of about thirteen, which ſtill remain in the common field ſtate, two I underſtand are taking the requiſite meaſures for an incloſure: the advantages are great, rent more than doubled, the produce of every kind proportionably increaſed. In the open field ſtate, a crop and fallow was the uſual courſe. What is

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here called the "ſeven-field huſbandry" now generally obtains; that is, about a ſeventh part ſainfoin, and the remainder under the following routine; turnips, barley, ſeeds two years, wheat, oats. A part of the wheat ſtubble is ſometimes ſowed with peas, but generally more with a view to home conſumption than for ſale, that crop being very precarious, if often repeated. Vetches are likewiſe frequently, though not ſo often as they ſhould be, ſubſtituted for the oat crop, to be eaten on the land with ſheep, or mowed for horſes and other ſtock. The management of the crops requires to be more particularly deſcribed.

Sainfoin.—This diſtrict ſtands one of the firſt in the cultivation of this excellent graſs; the uſual management has been to ſow it with barley, after turnips, three buſhels per acre, to which is generally added about five pounds of trefoil, which generally improves the firſt year's produce, and by occupying the ſoil, prevents the weeds from getting a-head till the ſainfoin has eſtabliſhed its roots. There are ſome very ſuperior managers, however, who, having been induced from an accidental occurrence to think a different procedure would be more advantageous, tried it with ſo much ſucceſs, that they have conſtantly adhered to it ſince. The method alluded to, is to ſow it on land exhauſted by repeated cropping and full of couch graſs; the ſainfoin rooting ſo deep, does not draw its nouriſhment

like corn from the ſurface ſoil, and therefore is not injured by its impoveriſhed ſtate, whilſt its greateſt enemy, the black bent, is effectually kept under by the couch graſs. In this practice it is likewiſe ſown with barley, and very thin, not more than a buſhel per acre, it having been noticed by the ſame attentive obſervers, that, when ſown thin, the roots are larger and more vigorous, and in two or three years get full poſſeſſion of the land, producing greater crops, and laſting longer than the thicker planted. There are other practitioners who object to thin ſowing, obſerving that the hay being chiefly wanted for ſheep, although it may produce as much or more in quantity, the ſtems are much larger and not ſo palatable to that animal, occaſioning great waſte in the conſumption. It muſt likewiſe be obſerved, that the method of ſowing it on foul exhauſted land, having been tried in the neighbourhood of Guſting, on a leſs genial ſoil, has, in two inſtances that have come to my knowledge, failed; it might therefore be adviſable, when the culture is new, to make ſmall experiments firſt. In the neighbourhood of Stowe, I am informed, a fourth part of the land is appropriated to this graſs; but as it requires a great many years to intervene before land that has once borne it, can be cropped with ſucceſs, that probably may be found too large a proportion. The duration of ſainfoin depends a great deal on the management; mowing it before

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its full bloſſom is detrimental, the roots bleeding very much and mildewing; for the ſame reaſon ſeeding of it is accounted beneficial; if wiſhed to laſt, it ſhould never be fed but in the months of October and November, and then only with cattle, ſheep biting too cloſe; the lattermath is, however, excellent food for weaned lambs, and therefore often applied to that purpoſe. Indeed the farmers in general do not wiſh it to laſt longer than ſeven years; the land being in that time thoroughly reſted and fit for corn, whilſt other land under the plough wants reſt; but if deſired, it might, with proper management, laſt ten or twelve years. The hay, if well made, is, in the fore part of the ſeaſon, equal to any meadow hay in the diſtrict for moſt purpoſes. When worn out, ſo as not to be worth mowing, it is generally paſtured a year or two, which thickens the turf, and of courſe produces more and better aſhes, when pared and burnt, in which method it is always broken up.

Turnips—in the uſual practice, ſucceed oats; the ſtubble is ploughed in autumn or the beginning of winter, in which ſtate it lies till ſpring ſeed time is finiſhed, when, being well dragged, it receives two or more ploughings, if neceſſary, with ſufficient dragging and harrowing between, and allowing as much time as poſſible between each operation, for the ſeeds of weeds to vegetate and be deſtroyed. The dung of the farm-yard is chiefly applied to this crop.

crop. They are ſown from the latter end of May to the beginning of Auguſt, and once or twice hoed, according to circumſtances. They are eaten off with ſheep; always beginning at the lower part of the ground, and working up hill; plenty of hay is allowed, which in this diſtrict is neceſſary for the health and well-doing of the animal. Turnips, thus expended, greatly enrich the land, and are found of uſe through the whole courſe of crops.

Barley—is ſown after turnips, on one ploughing, as ſoon as the peas and oats are got in the ground. Graſs ſeeds are either ſown before the laſt time of the harrows, or after the barley is come up, and before rolling it; in which caſe it is uſually covered in with a buſh hurdle: quantity of ſeed three buſhels; average produce twenty-four buſhels per acre.

Graſs ſeeds—chiefly ſown, are from two to ſix pecks ray-graſs, and from five to ten pounds trefoil; likewiſe a ſmall quantity of broad and white Dutch clover; but the light land is apt to tire of the broad clover, if often ſown in quantity; and the white Dutch is getting out of repute for ſheep feed. In the common practice the ſeeds are mown for hay, the firſt year, and grazed the following ſummer, when the land is ploughed up for wheat.

A very valuable ſort of *ray graſs*, which has been cultivated for twenty years paſt, by Mr. Peacey, of North-Leach, deſerves particular mention. Perhaps there is no graſs exiſting more valuable to the

ſtock

ſtock farmer than this, if properly managed; it is very early, and affords a great quantity of excellent keep before any other paſtures will carry ſtocks: a ground of it, hined the preceding Michaelmas, kept eight ewes with their lambs per acre for one month laſt ſpring, before any other paſture was ready for them. It is very nouriſhing, and grateful to all kinds of ſtock; as may be ſeen where they have a choice of that and other paſtures to run in, the natural paſtures will be quite neglected, whilſt the ray graſs will be pared cloſe to the ground: indeed it requires to be hard ſtocked; for if ſuffered to get a-head, it is neither ſo palatable nor nouriſhing; it is equally excellent for hay, if cut juſt as the ear appears, and before it is fully formed; in the autumn, it likewiſe affords a great deal of keep. It rather improves with age, and has been found particularly advantageous in laying land down to permanent paſture. It has not been a general practice, with the farmers on theſe hills, to raiſe their ray graſs ſeed; the deficiency of natural paſtures, and the large flocks of ſheep kept, making the lays valuable both for hay and paſture; this has occaſioned rather a ſcarcity of ſeed of late years, and been the means of introducing very inferior ſorts from other countries, of which ſome have proved ſtrictly annual, producing a tolerable crop the firſt year, but dying away the following winter; whilſt that of longer duration has been found very unproductive,

productive, particularly all the latter part of the ſeaſon. The great loſs and injury ſuſtained by theſe failures has made the farmers more attentive in their choice of ſeed, and greatly advanced the price of that which can be relied on; ſo that Mr. Peacey ſeeded an unuſual quantity laſt year, to anſwer the demand which he foreſaw he ſhould have for it; it is already engaged at the advanced price of half-a-guinea per buſhel, which price was fixed on it by ſome gentlemen who had experienced its value, and thought it would not only properly reward the attention which had preſerved ſo valuable a graſs, but be the means of making it more generally known, and encouraging the culture of it, to the excluſion of all the inferior ſorts. Mr. Peacey has likewiſe cultivated the orchis graſs, a broad-leaved graſs, that ſprings directly after the ſcythe, in mowing grounds; he finds this very uſeful on barren land, that will bear no other graſs. A bank of this deſcription adjoining his downs is covered with the orchis graſs, and from the ſtock lying on it, and paring it down, it ſeems very palatable to them.

Wheat.—The method of ſowing this grain in the diſtrict under notice, is rather ſingular. The land is ploughed from two to ſix weeks before ſowing, as circumſtances permit; if it gets quite graſſy, it is thought better. The firſt rain that falls in Auguſt in ſufficient quantity to thoroughly ſoak the land, begins the ſeed time; from thence to the middle

of

of September is thought the beſt time. The ſeed is dragged in with heavy drags, working the land till the furrows are well broke, but rather wiſhing to leave it rough than otherwiſe; if frequent ſhowers fall during the dragging in, ſo as juſt to allow the drags to work, it is thought better by moſt people. Experienced men ſay that our land, being naturally too light for wheat, is by theſe means rendered more ſuitable to it, at the ſame time that weeds are very much checked, which is a very material object where the corn is ſo long on the ground. I have ſeen adjoining lands, the previous management of which had been exactly ſimilar the one part ſown wet; produced a very good crop for the country, and quite clean; the other, ſown dry, was not half ſo good, and devoured with filth. This method is practiſed on the dry ſound loams, of which the diſtrict chiefly conſiſts; on the heavier ſoils, attention is paid to the ſtate in which they work beſt: the ſtiff ſour land is frequently fallowed and dunged for wheat, over which broad clover is often harrowed in; in ſpring, after lying one or two years, it is broke up for wheat, followed by oats; or ſometimes oats are ſown on the lay, according to the ſtate of the land. Turnips are ſometimes ſown on this ſort of land, but perhaps had better be omitted; the poaching, in eating off, poſſibly doing more injury than the teeth of the ſheep recompenſes, rendering it unfit for any

crop

crop but oats, and probably injuring them. Wheat, clover, and oats, ſeem to be the crops beſt adapted to theſe ſoils. Cabbages are not known here in field culture, and probably theſe kinds of ſoils would require more dung than the ſituation could command to cultivate that plant to any advantage. It may be right to notice, in this place, an error of Mr. Marſhall's in his Rural Economy of Glouceſterſhire, vol. ii. p. 33. He repreſents the Cotswold farmers as "wiſhing to plough for every crop when the ſoil is wet, and working even their fallows when they are moiſt." This miſtake originated, no doubt, from the account given him of the wheat proceſs, as juſt related. The fact is, the farmers here are as deſirous of working their fallows in dry weather, and find the ſame good conſequences reſulting from it, as in other diſtricts. Attention is likewiſe paid to ſowing the barley in dry weather. The old adage reſpecting peaſe, "if you ſow in a flood, they will come up in a wood," ſeems verified on this ſoil; as for oats, their hardineſs requires no particular nicety. Such an error is very excuſable in an account which is only given in an excurſion. Mr. Marſhall's account of this county contains much valuable information, and has greatly ſhortened mine.

Oats.—The wheat ſtubble is mowed, if worth it, or otherwiſe harrowed, when it becomes brittle enough to break off, and carted to the fold-yard; and

and the land ploughed, as ſoon as leiſure and the weather will permit, for Oats, which are harrowed in as ſoon as the land will work, in February, about four buſhels per acre, average produce 24 buſhels.

Peas are ſown as early as poſſible in ſpring, the ſort moſtly in uſe is the early Burbage; they are generally ploughed in under furrow, about five buſhels per acre, average produce twenty-four buſhels.

Winter Vetches are, in the practice of a few individuals, ſown in quantity to eat off with ſtore ſheep; they are uſually ſown after wheat, as ſoon after harveſt as opportunity allows. The ſheep are put on them the latter end of May or beginning of June. They are commonly hurdled off in the ſame manner as turnips; but if a bulky crop, the better way is to give them through rack hurdles, which are made the ſame as the common five-railed ones, only leaving the middle rail out, and nailing ſpars acroſs at proper diſtances, to admit the ſheep to put their heads through. A ſwarth of vetches being mown acroſs the lands, a ſufficient number of theſe hurdles, allowing one to five ſheep, are ſet cloſe to it; at noon the ſhepherd mows another ſwarth, and throws it to the hurdles, and the ſame at night; next morning, a ſwarth being firſt mowed, the hurdles are again ſet; thus moving them once in twenty-four hours; by this trifling additional trouble, the vetches are clean eaten off, and the land equally benefited. As faſt as the lands are cleared, they

they are ploughed and ſown with turnips, in which way good crops are often obtained in kind ſeaſons, on land cleared in tolerable time, but it cannot be depended on for the main crop. When a ſucceſſion is wanted, ſpring vetches are ſometimes ſowed; but at the time they are ſown, labour is more valuable, and beſides, they are not ſo much to be depended on.

Manures are chiefly thoſe of the fold-yard. The wheat ſtubbles are frequently mown or raked for litter, and cattle kept in ſufficient quantity to eat the ſtraw, but this is not always the caſe; large heaps of ſtraw are ſeen in ſome parts of the diſtrict, rotting at the barn doors for want of cattle to eat and tread it into dung, and this generally for want of a ſufficiency of paſture to ſupport the ſtock in ſummer; but ſurely the keeping more land down to graſs, or raiſing ſome ſort of vegetable food for ſuch ſtock, would be ultimately attended with increaſe of produce and profit to the farmer, and advantage to the publick. The formation of the fold-yards, ſo as to prevent the rain water from waſhing the dung heaps, as well as preſerving the liquid part of manure, is not at all attended to, though ſo much deſerving of attention; on the contrary, from the ſloping ſituations of many of the fold-yards, it might be imagined, that the prime object in laying them out, was to diminiſh the value of the dung-heaps as much as poſſible. Aſhes from burnt turf,

or

or graſſy ſtubbles, are very beneficial, and ſuch land is uſually broken up in that way. Lime is too expenſive for manure; nor, from two or three experiments that have come under my obſervation, does it ſeem worth attention, if that were not the caſe. Soot has been tried on ſainfoin to great advantage, but it is not to be procured in ſufficient quantity for any conſiderable practice. Marl has been formerly uſed in different parts of the diſtrict; a pit has been opened of late years in the neighbourhood of Northleach, to the great improvement of ſome adjoining graſs grounds. Folding ſheep is very little practiſed or approved of. The obſervations in the Annals of Agriculture on that practice, are well deſerving of attention.

Watering meadows has long been practiſed in this diſtrict; there is, probably, no conſiderable quantity of land capable of that improvement, without interfering with the mills, where it is not done.

Implements of huſbandry.—The waggon of this diſtrict is deſcribed by Mr. Marſhall, and by him allowed to be the beſt in the kingdom for huſbandry uſes. The teſtimony of Mr. Drake, given to the Worceſterſhire ſurveyor, tends to confirm that idea. The carts are very good for hauling out dung, but not ſo well calculated for road work and other uſes. The ploughs are long in the beam, with one wheel; they are rather improved in their conſtruction of late. Four horſes, or four or five oxen, the moſt

uſual

uſual draught; in ſpring ſeed time and ſtirring fallows, generally leſs. It is moſt probable ploughs might be invented to do the work as well with leſs ſtrength; but the land in general being a tenacious loam, full of ſtones, is more tireſome to the cattle, and requires more ſtrength than would ſeem neceſſary on a ſuperficial view.

Horſes and Oxen are both uſed, the latter in harneſs, and getting ground, but not ſo much as they ought. One team of horſes is neceſſary for carry-out corn on our rough and hilly roads, but where more than one team is kept, oxen certainly are in every reſpect the moſt eligible. Where the farms are large or not handy to the homeſtall, a wooden houſe, fixed on a ſledge, is uſed to hold the ox harneſs, which being drawn to the ground where the beaſts are paſtured, and as convenient as can be to their work, ſaves a great deal of time and unneceſſary travelling. The ſame cabins, if made with ſparred bottoms and lids to open on each ſide, are very uſeful occaſionally to keep fattening calves in.

Farm-Houſes and Offices, in the old incloſures, are frequently unhandy and inadequate to the farms annexed to them, which doubtleſs ariſes from the improvements in huſbandry ſince their building. In the new incloſures, they are generally ſpeaking very conveniently ſituated, with ſufficient ſhed-room for cattle implements. In the modern improved method of incloſing, it is thought beſt to divide the

arable

arable part of the farm into ſeven incloſures of equal ſize, being the number required for the moſt approved courſe of crops, allowing two or three ſmaller patches near home for odd purpoſes.

The fences are uſually dry ſtone walls, good quarries of which are generally very handy. Quick hedges are ſometimes planted, but the attention and time required to raiſe them is a great objection. In one or two inſtances they have been planted within ſide the walls with great ſucceſs—it is a pity the practice is not more general.

Population is ſuppoſed to have increaſed on theſe hills of late years, and it is generally believed that incloſures, by finding more employment, tend very much to promote, at leaſt, uſeful population. The ſmall-pox frequently makes great ravages in the country—it is a pity a general inoculation did not take place every five or ſix years, which would be a great ſaving in expence to the different pariſhes, as well as the preſerving many uſeful lives.

Prices of Labour are conſiderably increaſed; from 12d. to 14d. a day in winter; 18d. to 20d. haymaking; harveſt 2s; beer or an allowance in malt, in ſome places, is gaining ground, and as much as poſſible is done by the great. Women from 6d. to 8d. and 9d. in haymaking; in harveſt 12d. Hours of work from ſix to ſix, when day-light permits; late hours in haymaking and harveſt generally recompenſed with beer, &c.

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The Value of Draining has been long underſtood and practiſed in this diſtrict, old drains of wood and ſtone being frequently met with in making new ones. A great deal has been done of late years; there is ſtill much to do; but ſome of the ſtiff ſour land that moſt wants it, is of ſo retentive a nature, that the drains will not draw to any conſiderable diſtance. Probably Mr. Elkington's method, as mentioned in the Annals of Agriculture, vol. xvi. page 544, might be beneficial. The chief material is ſtone, the methods of doing it vary, but have nothing new from thoſe deſcribed in different parts of the Annals. Probably digging the trenches ſufficiently deep, and filling with ſtone where it is handy, will be found the moſt cheap and laſting method. In doing this the largeſt ſtone ſhould be put in firſt, and the ſurface levelled with ſmaller ones, ſprinkling a little ſtraw on the top, to prevent the looſe mould from getting between; or for want of that, the graſſy ſides of the ſods turned down will anſwer the ſame purpoſe.

Paring and Burning is very much practiſed and approved; old ſainfoin lays, and all turf of a ſufficient texture, are uſually broke up in that way. Turnips are often the firſt crop; and from the freſhneſs of the land, and the good effects of the aſhes, a large crop is generally obtained. But as the time is too ſhort to get the land in proper tilth for the ſucceeding crops of barley, ſeeds, &c. it is thought

thought a better method to ſow wheat firſt, on one ploughing; after which, the aſhes being ſtill freſh in the ground, a crop of turnips may be as ſafely relied on, and there is plenty of time to get the land in compleat tilth. Graſſy wheat-ſtubbles, that will produce a tolerable quantity of aſhes, are frequently pared and burnt for turnips with great ſucceſs. In ſhort, whenever followed with the turnip and clover huſbandry, its good effects are indiſputable; but like every other practice, it is liable to abuſe in the hands of deſigning men, who have ſometimes made uſe of it to force repeated crops of corn, till the ſoil has been compleatly worn out and rendered incapable of any uſeful production.*

Coppices are very much wanted in this diſtrict. Aſh thrives remarkably well on this ſoil, and is very uſeful for hurdles and gates, as well as for fuel, which is a very ſcarce article; the coppices we have are chiefly compoſed of this wood, which is fetched from a great diſtance for coopers and other uſes; and has greatly riſen in price, as well as got ſcarcer of late years, ſo as to cauſe ſerious apprehenſions in ſome parts of the diſtrict, of great inconveniencies for want of a ſufficient ſupply of this

* Down-Ampney and its neighbourhood, the part of this county that borders on Wiltſhire, is the only place in which I have met with any objections to this management; the ſoil here conſiſts of ſtiff clays and gravels; on the clays they do not think it anſwers, but approve of it on the gravels.

uſeful article. It is a great pity that every eſtate had not a ſufficient quantity planted to ſupply the tenantry and labourers dependant on it. Odd corners and four patches, of little uſe under the plough, might be very profitably applied to this purpoſe; in boggy ground, too wet for the aſh, the alder thrives well, and is very uſeful for gates, hurdles, and other common purpoſes. It has been found that aſh will not grow on the tops of the hills, though it thrives very well on the ſlopes; but there are a great many ſuch ſituations in this diſtrict, which if planted with Scotch firs, beech, or any hardy trees that would grow, would add much to the beauty of the country, as well as greatly improve the ſoil and climate of the adjoining land, by the ſhelter they afforded. The chief woodlands are in the pariſhes of Chedworth, Withington, and Dowdeſwell, ſmaller patches in Guiting and one or two neighbouring pariſhes; theſe are looked on as the natural production of the ſoil, protected and encouraged of late years. They are cut at about 18 years growth, and produce from 30l. to 60l. per acre. There are ſome coppices conſiſting chiefly of aſh, in the pariſhes of Wick and Slaughter, that have been planted in modern times; they are firſt cut at 10 years growth, afterwards generally at about 18 years growth, and produce from 25l. to 60l. per acre. Great attention is here paid to keeping them clean, by hoeing for two or three years after cutting, till

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the young ſhoots are ſufficiently ſtrong to ſmother the weeds. Alder coppices are cut at 12 years growth, and are worth from 15l. to 25l. per acre.

Leaſes.—I know of nothing commendable in the leaſes of diſtrict; a good plain form, equally protecting the intereſt of landlord and tenant, is much wanting, if poſſible to be drawn. At preſent they are chiefly in profeſſional hands, who either content themſelves with antiquated copies, or, in order to guard againſt trifling inconveniencies, cramp the induſtrious tenant, ſo as often to prevent improvements to the advantage of himſelf, his landlord, and the community; whilſt, at the ſame time, they do not prevent the knave and ſloven from running into the contrary extreme.

It has already been noticed, that this diſtrict has been greatly improved of late years; it is ſtill improving, nor is any ſpirit of that ſort wanting; but it might be greatly aſſiſted by the removal of ſome of the burthens that the farming world in general labour under. Among theſe, the payment of tithes in kind deſerve to be mentioned. In the new inclofures, this load has been got rid of by giving up a part of the property in lieu of it. One-fifth of the arable, and one-ninth of the paſture, and in ſome inſtances, two-ninths of one, and one-eighth of the other, has been aſked and agreed to. As the impropriator is exonerated from all expences, except inſide fences, the part that he takes is more than

equal to a fourth of the arable land, even when one-fifth is allowed; but even then the improvements being entirely the proprietors, they have been obliged to acquieſce. The acts of parliament allow the rectors only to leaſe for the firſt twenty-one years, and afterwards the tenants remain tenants at will; in conſequence of which, all the lands ſet apart for the clergy, become in a great meaſure unproductive, as the tenants take from them all they can raiſe, and ſet every improvement aſide; and therefore they are ſo far neither beneficial to the clergy or the nation. But were commiſſioners appointed to value the tithes of the pariſhes, and alſo the landed eſtates of the clergy, and were they obliged, under that valuation, to grant leaſes at the rent then ſet on them, their eſtates would be improved in proportion as other lands; and the tithes being ſecured to the occupiers for a term, not exceeding twenty-one years, they could have no objection to the advance to be made on them at the expiration of that term, and the difficulties now exiſting would be done away in ſo far as reſpects the occupiers and the nation. The rent to be paid for the land would be of no conſequence in what proportion it was paid, as the only ſecurity requiſite to the occupiers is, that on laying out their capital they may have from the impropriator an equal term with that they have from their landlords, and to put both on an equal footing. As

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the law now ſtands the burden may be immoderate, and therefore to every perſon acquainted with the value of money (which the farmers are now more than formerly, and know how to make calculations) it cannot be expected that they will lay out any conſiderable ſum, when the firſt 11 per cent. profit goes to the impropriator, before they can receive any advantage themſelves: and, in caſe of a loſs, that loſs is augmented by the impropriators taking a tenth part of the capital laid out, as far as it was returned to the occupiers.

THE STROUDWATER HILLS.

The ſoil on theſe hills is chiefly light loam; not ſo tenacious as the Cotſwolds, nor ſo productive; there is likewiſe ſome quantity of ſour wet land; the climate is nearly ſimilar to the Cotſwolds; the properties are various, as is the ſize of the farms. On the hills, ſtrictly ſpeaking, it is ſuppoſed, nine-tenths of the land is arable. The approved courſe of crops, the ſame as before noted of the Cotſwolds. On the vallies there are large tracts of good meadow land, which is applied both to grazing and the dairy; but moſtly the latter. There is ſome quantity of land watered, and a great deal more is capable of that improvement; but the mills interfere greatly; for the dairies the cattle are chiefly bred,

bred, and are in general good; in grazing, the ſtock is more generally bought in, and are of various breeds, according to their application, the opinion of the grazier, and the goodneſs of the land.

Sheep, on the hills, are the chief ſtock; theſe are moſtly of the horned Wiltſhire breed, the fleeces average nine to the tod of 28lbs. worth this year 26s. 6d. per tod. Average weight when fat, wether 24lbs. ewe 22lbs. per quarter. This breed is liable to a diſorder called the Goggles, which ſometimes occaſions very heavy loſſes. The only method of prevention is, entirely changing the flock once in eight or ten years. One practitioner, Mr. Hayward of Beverſtone, has been induced, from this circumſtance, to try the Cotſwold breed, and having for three or four years paſt, uſed rams of that breed, he will very ſoon entirely get rid of the Wiltſhire blood; and I am inclined to think, will find a great advantage in ſo doing.

The Rotation of Crops, it has been obſerved, is ſimilar to that on the Cotſwolds. I ſaw here an application of turnips quite new to me. Mr. Hayward gives them in quantity to his farm-horſes, which he finds keeps them very healthy, and induces them to eat the barn chaff and other dry meat with a better appetite;—they were, when I ſaw them, in very good condition, though I was informed they had had no corn for half a year paſt, and were conſtantly worked. The Cotſwold farmer

can

can ſeldom procure turnips in ſufficient quantity for ſuch an application, nor would he chuſe to deprive his land of the benefit derived from their being eat on it by ſheep, except the crop was very heavy, in which caſe, perhaps, they might be advantageouſly thinned a little for this purpoſe, or for fattening cattle in ſtalls. This gentleman, and his neighbour Mr. Tugwell, cultivate the turnip-rooted cabbage. Mr. Tugwell's crop is very fine; they are tranſplanted on to ridges, formed by a *bout* of a double mould-board plough of his own invention; he finds they will not flouriſh with him, without tranſplanting. This crop comes to perfection when the turnips are all ſpent, and ſupports a great ſtock juſt in the ſcarce time of ſpring, which makes it particularly valuable. Mr. Tugwell has likewiſe cultivated the Roota-baga, which he does not at preſent approve of, but means to give it farther trial.

This gentleman is the inventor of the two-horſe plough, which has been honourably noticed in the Tranſactions of the Bath Society, and which I underſtand he is now requeſted by them to draw up a particular account of. I ſaw ſeveral of them at work in a ground of Mr. Hayward's; they ſeemed to go very eaſy to the horſes, and made very good work. Mr. D. Hayward informed me that in a trial of ploughing among ſome neighbours, they ploughed an acre of clover ley, with one of theſe ploughs and a ſingle horſe, in ſix hours. Theſe

ploughs

ploughs have been tried on the Cotſwold hills; but the perſons who tried them never entertained an idea, that the horſes could go in them for eight or nine hours without baiting, as is practiſed here; and the introduction of the Norfolk cuſtom of baiting at noon and working later in the evening, though by no means a bad one, yet being new to the country, was attended with ſo many difficulties as to diſcourage the uſe of them.

The double mould-board Plough is very clever, and ſeems well calculated for the purpoſes it is deſigned for. Mr. Tugwell uſes it to make the water-furrows on his land. His manner of doing this on ſidelong grounds, is well deſerving attention. Inſtead of furrowing down the ſlopes in the uſual way, he draws his furrows acroſs, but inclining ſufficiently with the declivity for the water to draw off, by which means every part of the ground is thoroughly and equally drained; and the bottoms of ſome of his grounds, which, in the common method, were poiſoned with wet from the upper part, being now laid quite dry, are become the moſt productive parts of the fields.

This gentleman is likewiſe conſtructing a roller, which promiſes to be a very uſeful implement.

I ſaw two rollers in this neighbourhood, on a conſtruction new to me; one of them was procured from the neighbourhood of Marlborough—a common roller of about fourteen inches diameter, ſurrounded

ſurrounded with wheels nine inches diſtant from each other, and three feet in diameter; the ſpokes being let into the roll. The other is an improvement from this; a ſmaller roll is the axis, on which are put ſolid wheels, about three feet in diameter, and one-half inch thick; made alternately of wood and caſt iron: the wooden ones are made to fix at any diſtance; between two of theſe an iron one is put one-half inch leſs in diameter, and with room ſufficient to play up and down, ſo as to give way to any obſtacle, and to preſs down into the hollows; it likewiſe, by theſe means, is rendered leſs liable to choak up in rough land. For breaking clods, or in light land, where great preſſure is wanting, theſe appear to be very effective implements.

There appears to be a great deficiency of ſhed-room in this diſtrict. Implements of huſbandry of all ſorts are either left in the grounds where laſt uſed, or at beſt have only the ſhelter of a tree to preſerve them; nor are the yards much better accommodated for wintering cattle. This is a very material object; the injury ſuſtained by having the implements thus expoſed, is, perhaps, more than equal to the fair wear of them, and would well pay for the conſtruction of ſheds for their preſervation. In regard to live ſtock, it is ſtill worſe; cattle fed on ſtraw, in expoſed and unſheltered ſituations, are ſure to ſink conſiderably; and are liable, when ſpring comes on, to the yellows and other com-

plaints,

plaints, which greatly injure, and ſometimes prove fatal to them. Dairy cows in the open fields, down in the vale, are known to ſink very much in bad winters, though foddered with good hay. On the contrary, where good yards are conſtructed, with plenty of ſhed-room, and attention is paid to littering them down occaſionally, and keeping the cattle dry and comfortable, they ſometimes even improve on the ſtraw, and are ſure to come out healthy and thriving in ſpring.

The land is chiefly in an incloſed ſtate; but in ſome inſtances, additional partitions are wanting; the fields being too large for the proportion of the farm for any particular crop, which is attended with great inconveniencies; ſome open fields remain, but are faſt diſappearing. Incloſures have been uniformly attended with great advance of rent, and increaſed produce.

The Woollen Manufactory is carried on to great extent in this diſtrict; the fine trade is at preſent at a ſtand, but the coarſe for army clothing and the Eaſt-India company remarkably briſk. The introduction of machinery, for every proceſs the wool goes through to the loom, has thrown many hands out of employ; and ſeveral gentlemen, I have conſulted, attribute the enormous riſe of poors rates entirely to that cauſe; theſe, I have been credibly informed, amount in ſome inſtances, in the immediate vicinity of the manufactories, to ſix ſhillings

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in the pound and upward yearly. But I am inclined to aſcribe this heavy burthen on the landed intereſt, more to the vicious and profligate habits of the weavers, who can, if good hands, earn a guinea and a half a week; which, ſuppoſing the carding and ſpinning machines to have deprived the women and children entirely of employment, is certainly ſufficient, properly laid out, to maintain their families comfortably. But the misfortune is, theſe earnings very ſeldom find their way home, but are waſted in a publick-houſe, whilſt the families are clothed and fed at the expence of the pariſh, and the men themſelves, notwithſtanding their great earnings, are ragged and miſerable in appearance; and in the event of a week's illneſs, or a temporary ſuſpenſion of the particular branch of the manufactory they are bred to, are reduced to the greateſt diſtreſs. This evil is not peculiar to the clothing manufactory, but is common to all I have had any acquaintance with; it is a complicated evil, and, if capable of any remedy, requires a much abler pen than mine to point out the means.

N. B. Theſe laſt remarks on manufactures and poors rates, are in ſubſtance a repetition of what the ingenious author had before made on the ſame ſubjects, in his account of the former diſtrict, and therefore may be conſidered as applicable to all parts of the county where the manufacture is carried on. The truth of them may be liable to controverſy from perſons in particular ſituations; but much truth

truth will be allowed to attach to them by others: and they are certainly worthy of very ſerious conſideration, from all intelligent friends of general order, morality, and happineſs.

ACKNOWLEDGEMENT
TO THE BOARD OF AGRICULTURE.

THE *foregoing extracts are made by the obliging permiſſion of the* BOARD OF AGRICULTURE, *from the ſurveys of the three counties of Dorſet, Wilts, and Glouceſter, which, with the county of Somerſet, conſtituted the original bounds of the "Bath Agricultural Society." The ſurvey of the latter county not being yet completed, cannot be noticed in this volume; but what has thus been, by the aforeſaid permiſſion, ſelected, was deemed a tribute of attention, which the Committee of the "Bath and Weſt of England Society" was deſirous of paying to parts of a diſtrict, to which the Society has owed ſo much cordial ſupport, and on the improvement of which much ſolicitude has been beſtowed. The Society, in common with every other patriotic body and individual, has reaſon to expect more abundant effects from the noble exertions of the* BOARD; *and from the condeſcending attention which this Society has experienced from an inſtitution ſo extenſive in its views and meaſures, it is hoped the amicable intercourſe, ſo happily begun, will increaſe, and long continue, to the mutual ſatisfaction of the two bodies, and the laſting advantage of the nation at large.*

Article IX.

On the abuſe of Spirituous Liquors;—*its Effects on publick and private Property, and conſequently on National Proſperity.*

[By A. Fothergill, of Bath, M. D. F. R. S.]

UNDER the head of Spirituous Liquors may be comprehended, not only thoſe which are in common uſe, as brandy, rum, gin, &c. but alſo the more coſtly compound waters, or rather ſpirits, as thoſe of cinnamon, nutmegs, anniſeeds, &c.

Spirits, though warranted as genuine, are, however, frequently adulterated, and conſequently rendered ſtill more detrimental to thoſe who drink them. Thus, inſtead of genuine French brandy, we are commonly preſented with a fiery malt ſpirit, corrected, as is ſuppoſed, with *aqua-fortis*. Yet with this counterfeit brandy, are often prepared the famous compound waters, tinctures, and choice cordials, ſo highly extolled for their ſuperior quality.

Even gin, that favourite liquor among the vulgar, appears in reality to be a more vulgar compound than its votaries are aware of; for inſtead of a fragrant ſpirit of juniper diſtilled in Holland, their friends, the ſmugglers, take care to ſupply them with a vile, heating, ill-flavoured compoſition, brewed in England. Such at leaſt, according to

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an eminent chemiſt, is their "Genuine Hollands NEAT as imported!"*

Yet ſuch is the rage for this deteſtable potion, that thouſands of poor half-famiſhed creatures daily ſwallow it with inſatiable avidity. Though ſupported, together with their helpleſs families, at the expence of the publick, they have been often known to pledge their allowance of bread, their clothes, nay, the very beds they lie on, to procure their accuſtomed doſe of gin!

If we deſcend into their comfortleſs abodes, what an affecting ſcene do we behold! Diſeaſe, poverty, and wretchedneſs, pourtrayed in their ſtrongeſt colours!

This deplorable abuſe of ſpirituous liquors, then, is a national evil of the firſt magnitude, and is certainly more malignant in its nature, and more fatal in its conſequences, than is commonly imagined. It not only diſqualifies men for activity, and habits of induſtry, but totally deprives them of that honeſt ſpirit of independence, which ought to be their pride as Engliſhmen. The time miſſpent in riot and debauch, occaſions a vaſt loſs of labour, ruins the peace of families, and ſtrikes at the very root of population. Men addicted to this vice have no idea of making proviſion for a family, or ambition

* Boyle Godfrey's Miſcellaneous Experiments, p. 95.

of

of earning more at their reſpective trades, than barely ſufficient to buy the daily portion of ſpirits. This being the ſum total of their wiſhes, or, in their own language, "their meat, drink, and clothes," which indeed is almoſt literally true, as they uſe very little of either beſides.

This pernicious habit is highly injurious to publick as well as private property, and conſequently to national proſperity. Among mechanics and tradeſmen, it produces debts, diſgrace, and bankruptcy. Among farmers, bad tillage, ſcanty crops, and univerſal bad management, ſuch as fields and gardens over-run with weeds, broken fences, and half-clad dirty children, without manners or education.

Among ſervants and domeſticks; idleneſs, extravagance, loſs of character, and beggary.

In the year 1751, when the abuſe of ſpirits had riſen to an alarming height, the number of dram-drinkers in the kingdom of Great-Britain, according to a very able calculator, amounted on a moderate computation to 400,000, and he conceived it probable that they might conſiderably exceed that number!*

On balancing the account between the profits ariſing to government, and the damage acrueing to the nation at large, he endeavours to prove that a

* Inquiry into the Effects of the Abuſe of low-priced Spirits.

loſs,

loſs, little leſs than four millions, muſt yearly fall on the trading intereſt, the landed intereſt, and the revenue of Great-Britain. To pretend, ſays he, to ſhew which of theſe three are the leaſt ſufferers, would be a poor conſolation: be it ſufficient to obſerve, they muſt all jointly ſuffer.

His ſtatement of the ſuppoſed annual loſs, it is to be obſerved, related only to the number of dram-drinkers *alive* at that period, which, though very great, perhaps did not exceed thoſe of the preſent day. But if to this we add the damage which the nation ſuſtains by the premature and untimely deaths of ſo many fellow-creatures, how ſhall we eſtimate the loſs!—Suppoſing for the preſent, however, we only conſider the loſs of time, the loſs of labour, and of money miſſpent in publick-houſes; can we wonder that our pariſhes are overburthened with poor; that our priſons overflow with inſolent debtors; or that our poor-rates, which long ago amounted to the enormous ſum of two millions a year, ſhould be rapidly increaſing?

But is it not ſtill more mortifying to obſerve the miſeries of the poor, inſtead of being diminiſhed, proportionably increaſed, and keeping pace with this daily increaſing tax; while the poor of the ſurrounding nations are ſupported wholly without it! Is it not high time then, that ſome effectual check ſhould be given to this alarming abuſe of ſpirits, and that ſome more efficient, or œconomical

plan

plan be adopted, which may prove more favourable to induſtry and ſobriety?*

ITS EFFECTS ON THE HUMAN BODY.

THE chemiſts, who firſt diſcovered the art of obtaining from innocent ingredients a noxious intoxicating ſpirit, little dreamt that the diſcloſure of that

* Might an individual here preſume to offer a few hints towards a better proviſion for the poor, the plan ſhould conſiſt,

1ſt. In the eſtabliſhment of BENEFIT SOCIETIES throughout the kingdom, upon a liberal and extended ſcale, comprehending all ranks of people, ſimilar to what has been lately propoſed by my ingenious friend Mr. Pew of Shafteſbury; but with ſome neceſſary alterations reſpecting the periodical ſubſcriptions—the number of perſons in a family, and the ability of the ſubſcribers.

2dly. In the eſtabliſhment of HOUSES OF INDUSTRY and PENITENTIARY HOUSES in the reſpective counties, ſimilar to thoſe excellent inſtitutions which have long been ſo happily experienced in Holland.

3dly. In laying an ADDITIONAL DUTY ON ALL SPIRITUOUS LIQUORS, amounting nearly to a prohibition.

4thly. In REDUCING THE NUMBER OF PUBLICK-HOUSES, and in REFORMING VARIOUS ABUSES, to which they are at preſent liable. By thus ſtriking at the very root of the evil, might POVERTY itſelf in a great meaſure be prevented. Add to this, that a ſum not leſs than two millions might be annually ſaved to the LANDED INTEREST, and finally the POORS RATES FOR EVER ABOLISHED.

Moreover, by this plan being once effectually carried into execution (for it certainly is by no means impracticable) might the health of the lower claſs of people be preſerved—their morals improved—

that fatal ſecret, like the opening of Pandora's box, would inſtantly let looſe upon mankind, ſuch a formidable crowd of evils—evils for which not all their ſplendid diſcoveries—not all their boaſted remedies would ever be able to atone! For had they ſat down to ſtudy the ſureſt means of deſtroying health and life, without making an open direct attack upon either, they certainly could not have deviſed a more effectual method, than by introducing to the ignorant multitude this faſcinating poiſon, which at firſt, like a friendly cordial, cheers the heart and raiſes the ſpirits, while it ſecretly ſaps the conſtitution, and at length unhinges the whole machine!

War, that dreadful ſcourge of nations, while it continues to rage, commits indeed terrible ravages among a certain order of men; but population, continually going on, imperceptibly fills up the chaſm, and repairs the waſte.

But this Evil Spirit, like the deſtroying Angel of old, ſtalks through the land with a ſteady, though ſilent ſtep; every where ſpreading its baleful in-

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their induſtry rewarded. Should no means ſhort of even a total prohibition of ſpirits be found effectual, what ought to be the alternative? Ought the mere acquiſition of revenue ariſing from ſpirits, even for a moment, be ſuffered to ſtand in competition with the HEALTH and VIRTUE of the community? Or is there no method of ſupporting revenue, but at the expence of the more important intereſts of the nation—POPULATION, PROPERTY, and COMMERCE, the GREAT SOURCES from whence revenue itſelf is derived, and to which it ought ever to be ſubſervient?

fluence over our cities and villages, ſparing neither age, ſex, nor condition! It ſheds the dire contagion, not only amongſt our poor infatuated ſoldiers, ſailors, manufacturers, and day-labourers, but even communicates the infection to the tender mother, the affectionate nurſe, and the helpleſs infant. It not only poiſons the preſent generation, but even blaſts the hopes of the next, by intailing diſeaſe, miſery, and wretchedneſs, on their innocent offſpring! Nor is this to be wondered at, ſeeing that the milk of unhealthy mothers or nurſes, who are addicted to ſpirits, is peculiarly deſtructive to the tender frame of infants whom they ſuckle. Hence the number of puny, ſickly children, who bear all the marks of ſhrivelled old age, prone to convulſions, and other fatal diſeaſes, and who rarely indeed ſurvive the firſt ſtage of infancy.

The Rev. Dr. Hales obſerves, that the mortality among young children, and the decreaſe of births, keep equal pace with the abuſe of ſpirituous liquors; hence the ſtriking difference in both reſpects between London and Paris, the habit of dram-drinking being vaſtly greater in the former than in the latter. In London, in the year 1750, the burials were found to exceed the chriſtenings by 9,179

In Paris, in the ſame year, the chriſtenings exceeded the burials by - - - 951

Balance againſt London upon both articles in one year, - - - - 10,130

Such a degree of mortality of the infant ſpecies, unknown among the young of other animals, is ſurely an alarming circumſtance! The account, however, only relates to children under five years old, excluſive of all that prodigious number of Engliſh ſubjects, above that age, whoſe lives are continually ſhortened by the ſame cauſe!

In tracing the effects of ardent ſpirit on the human body, we ſhall find that it exerts its pernicious influence firſt on the ſtomach, the inner coat of which is expoſed to its full action. It ſoon deadens that exquiſite ſenſibility of its nerves which gives the keen edge to appetite, ſo eſſential to digeſtion. But this important organ, from its intimate connection with all the noble parts, may be conſidered as the *key-ſtone* of the fabrick. By gradually deſtroying this, it undermines the very foundation of health, and, in proceſs of time, lets down the whole frame. The liver next becomes diſeaſed; for on this organ it ſeems to exert a peculiar ſpecific power, and by injuring its texture, it interrupts the courſe of the bile, and renders it incapable of performing its functions.

From its action on thoſe two important organs, its effects are propagated far and wide over the whole nervous ſyſtem. It not only creates maladies peculiar to itſelf, but cauſes other diſeaſes to prove far more complex, more dangerous, and more difficult to cure. Hence may be explained the nauſea

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and loathing, the ſenſe of faintneſs and debility, the ſinkings, languors, and horrors, which dram-drinkers ſo often experience; and why they ſo rarely ſurvive the attack of an inflammatory or acute diſeaſe.

A ſmall glaſs of ardent ſpirit forced into the ſtomach of certain animals, throws them into violent convulſions, and even a tea-ſpoonful injected into their veins, almoſt inſtantly deprives them of life! So immediately fatal are its effects when applied to the naked nerves, or blood veſſels, that it may literally be pronounced a poiſon of the moſt dangerous and malignant kind! It is abhorred by the brute creation, who all, without exception, turn away from it with the utmoſt diſguſt. It is equally deteſted by man in his infant ſtate, till his appetite is depraved by evil example, and his natural averſion ſubdued by the all-conquering power of habit. Since cuſtom has rendered the uſe of ſpirits ſo familiar in this country, the evil is become epidemic, and the rage for ſtrong liquors, like contagion itſelf, pervades even the moſt ſequeſtered villages, inſomuch that it is now become difficult even for the moſt abſtemious perſons wholly to eſcape.

It is with peculiar concern, however, that we find ſo many inſtances of it even among the female ſex, who, from being once the patterns of temperance, and every thing that was amiable, are now reduced to infamy and contempt! A circumſtance not leſs

frequent

frequent than deplorable, eſpecially among the loweſt order of females! When women of better birth and education are innocently betrayed into this unfortunate habit, it generally happens from anxiety of mind, occaſioned by the miſconduct or cruel treatment of thoſe of the oppoſite ſex, who ought to have been the truſty guardians of their health and morals.

Another frequent, though unſuſpected cauſe of this abuſe, eſpecially among the inferior claſs of women, is the immoderate uſe of tea. This relaxing beverage poured down hot, as it generally is, at leaſt twice a day, tends to unnerve the female frame, and produce univerſal languor. The natural ſpirits being depreſſed, recourſe is imprudently had to artificial ones, the property of which is, firſt, to wind up the ſprings of the animal machine far above their natural pitch, then ſuddenly to let them down as far below it: hence it is that each glaſs of ſpirits ſoon requires two more to obviate its own bad effects, and the remedy at length is diſcovered to be ten-fold worſe than the diſeaſe!

Habitual dram-drinkers are not only ſhort-lived, but contract a variety of diſeaſes which embitter all the enjoyments that render life deſirable. To enumerate their manifold ſufferings would require a volume! Suffice it to obſerve in general, that the liver being obſtructed, and the conſtitution enfeebled; they commonly firſt fall into a jaundice; this

gradually

gradually ſlides into a confirmed dropſy, and this at length cloſes the fatal ſcene! Some few, who eſcape the jaundice or dropſy, contract gout or ſtone, while others are taken off by apoplexy, palſy, or inſanity! For this poiſon, whether quick or ſlow in its operation, is always *ſure* at the laſt. Some few hardy veterans, indeed, inured by degrees to a ſort of regular intemperance, being, as they term it, *ſeaſoned* by their liquor, now and then hold out longer than might be expected.

This however ought to afford but poor encouragement, to a life of intemperance, which, at beſt, is but to drag on a "*feveriſh ſtate of being*," deformed by vice, and chequered with infirmities. Beſides, it may well be ſuppoſed, that had theſe aged ſots purſued an oppoſite courſe, they might have lived happily to a far more advanced period. For be it remembered, that where one of thoſe through dint of conſtitution arrives at 60 or 70 years of age, thouſands are cut off in their prime! But what is remarkable, this proves no warning to their boon companions, who continue to run the ſame giddy round, till, like leaves in autumn, they drop off one by one, to make room for their hopeful ſucceſſors!

ITS EFFECTS ON THE MIND AND MORALS.

WINE, beer, and other fermented liquors, drank too freely, produce extravagant mirth and gaity, ending

ending at length in drowſineſs and ſtupidity. Spirituous liquors tend to inſpire the more angry and moroſe paſſions, which often terminate in fury and outrage. The former brings on intoxication in a more ſlow, gradual manner; the latter ſeizes the brain almoſt immediately, without leaving time for recollection.

This material difference in their effects may be eaſily accounted for, if we conſider that it is the ſpirituous part of liquors *only* that cauſes intoxication, and that this can never riſe to ſuch a height, when the ſpirit is in a tempered and diluted form, as when poured down in its ardent ſtate, and unallayed. Hence double-diſtilled ſpirits, though ever ſo genuine in their kind, are more ſuddenly deſtructive than the weaker proof ſpirits. This potent poiſon, when taken in exceſs, ſoon deprives men of their reaſon, the only faculty that elevates them above the brutes. It overthrows memory, judgment, and all the intellectual powers, introducing a temporary phrenzy, or ſavage madneſs, which ſinks them beneath the loweſt of the brutal tribe. For it ſuddenly converts a rational inoffenſive being into a fury, ripe for every ſpecies of miſchief and extravagancy, which in his cooler hours he would contemplate with horror and amazement. It prompts him to wreak his vengeance indiſcriminately, whether on his companions, or on glaſſes, furniture, and other inanimate bodies. As

ſoon

ſoon as this fit of phrenzy ſubſides, ſtupefaction enſues; when he ſinks down into a ſtate of total inſenſibility, during which the mind remains a complete blank.———

What a humiliating ſpectacle is here! How fit to inſpire compaſſion, contempt, reſentment, and horror! Well might the Spartans exhibit their ſlaves in this terrible ſtate of diſguiſe, the more effectually to deter their ſober youths from drunkenneſs. For in this unfortunate condition, man, lately the ſovereign among the creatures, is ſuddenly transformed into the moſt helpleſs, odious, and diſguſting animal in the creation!

Drunkenneſs, obſerve, is not to be conſidered as a mere ſimple vice, ſince in this one moſt others are included. Sobriety, the main guardian of virtue, being once baniſhed, a direct avenue is opened to every ſpecies of vice. Of this an admired moraliſt relates an affecting inſtance. A certain amiable youth of diſtinguiſhed virtue and ſobriety, reſolutely withſtood every temptation which a ſet of profligate companions could invent to corrupt his morals, till one evening they contrived to make him drunk: the plot ſucceeded, perhaps, beyond their expectation. Heated with ſtrong liquor, to which till now he never had been accuſtomed, he ſallied forth in purſuit of adventure, and on that fatal night committed robbery and murder!

Perſons

Perſons addicted to ſpirituous liquors, by degrees loſe all ſenſe of honour, virtue, and religion. Theſe ties once diſſolved, they ſtrive to ſtifle the voice of conſcience with inceſſant drams. Having wound up their courage to a pitch of ferocity, they are prepared to engage in the moſt daring enterprize of villainy and outrage, without ſhame, fear, or remorſe. Hence proceed blaſphemies, robberies, conflagrations, and murders, attended often with the moſt ſavage acts of barbarity! Hence the black calendars which periodically iſſue from the Old-Bailey and other priſons, announcing the numerous executions which ſhock our feelings, aſtoniſh foreigners, and diſgrace our national police!

SPIRITS—WHETHER ALLOWABLE ON CERTAIN OCCASIONS.

The advocates for ſtrong liquors, would endeavour to perſuade themſelves that ſpirits are not only uſeful, but abſolutely neceſſary to fortify the ſyſtem againſt the viciſſitudes of our climate, and alſo to enable it to undergo hard labour. That this, though plauſible, is a vulgar and dangerous error, is evident from numerous examples, not only among thoſe of our own countrymen, who drink nothing but water, but alſo of entire nations who never taſte ſpirits, and yet enjoy health and vigour

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in a ſupereminent degree. At Conſtantinople, where the uſe of ſtrong liquors is wiſely prohibited, the Turkiſh porters, whoſe only liquor is water or lemonade, are obſerved to perform their laborious taſk with alacrity, and with firm ſtep to ſuſtain burthens under which our dram-drinking porters would reel and ſtagger.

The brave ſoldiers under the Roman republic, whoſe drink conſiſted of vinegar and water alone, traverſed various climates in marching and fighting beneath a heavy load of armour. Yet they nobly ſuſtained their fatigue, and even conquered the world, without the miſerable aid of ſpirituous liquors. But it is obſervable, that when afterwards they became enervated by luxury and intemperance, they fell in their turn, an eaſy prey to the more rude and barbarous nations.

What has hitherto been advanced againſt the general *abuſe* of ſpirits, is not to be underſtood as applicable to their *uſe*. Nor is it ſo much my object to move the paſſions of my readers, as to convince their judgment.

According to its uſe, a *poiſon* may be converted into a *medicine*, and a *medicine* into a *poiſon*. Genuine ſpirit, when converted into punch, affords a generous cordial, and is certainly preferable to the adulterated wines that are but too commonly vended. Here the ſpirit properly diluted with water, and tempered with a due proportion of the acid of the fruit,

fruit, and the whole perfectly combined by the intervention of ſugar, loſes its fiery quality, and becomes a *new* liquor, not only more palatable, but abundantly more wholeſome, than when merely daſhed with water alone. On urgent occaſions therefore, and where ſuch a cordial ſeems to be really wanted, as when a perſon has long been expoſed to cold tempeſtuous weather, or exhauſted by ſickneſs, or bodily fatigue; a few glaſſes of warm punch may not be improper, in order to prevent a greater evil.

"*Give ſtrong drink*," ſays King Solomon, "*only to* "*him that is ready to periſh*."

Such was the advice of the wiſeſt of men, and happy would it be for mankind were it ſtrictly purſued! Then would this odious vice ſoon be compelled to hide its hideous viſage, and ſobriety, the guardian of virtue, return once more to preſide over our happy iſle. Then would the riſing generation be taught to withſtand the allurements of the maddening bowl, and to temper the higher flights of conviviality with harmleſs mirth.

PLAIN RULES—WITH SERIOUS ADMONITIONS, FOR THE PREVENTION AND CURE.

If ſuch then are the pernicious effects of ſpirits on public and private property,—on health,—on morals,

morals,—nay, on life itſelf, need any other arguments be adduced to inſpire my readers with an utter deteſtation of a vice ſo diſgraceful in its nature—ſo deſtructive in its conſequences! On the contrary, may it not be hoped that, by this time, it is no longer neceſſary to urge the matter further, nay, quite as ſuperfluous as it would be to caution them from ſwallowing arſenic, or plunging themſelves headlong from a precipice? Not to appear, however, too ſanguine in a matter which experience ſhews to be doubtful, and wherein exceſs of caution never can do harm, I ſhall venture to add a few friendly admonitions; for PREVENTION, in morals as in medicine, is eaſier and better than CURE.

1ſt. Let me earneſtly intreat thoſe temperate perſons of both ſexes, and particularly my fair readers, who have hitherto cautiouſly abſtained from ſpirits, as they value their health, and every thing that is dear to them, to hold faſt their reſolution, and remain firm againſt temptation. Let no ſtrong liquors be ventured upon as a remedy againſt bodily pain, or uneaſineſs of mind; nor let any ſpecious arguments betray you into a belief that ſuch liquors (except in the caſes already mentioned) either are, or can be, neceſſary to perſons in health, much leſs to young children. Since it reſts with you, who are ſtrictly temperate, to give a check to this unſeemly vice; let me perſuade you not only to keep a watchful eye over your own conduct, but to exert all your influence—

influence—all your authority—to diſcountenance it in others.

2dly. Let thoſe who from being frequently enticed to taſte ſpirituous liquors, and at length begin to contract a fondneſs for them, reflect a moment on the danger of their ſituation, and reſolve to make a ſpeedy and honourable retreat. Let them remember that cuſtom ſoon changes into habit; that habit is a ſecond nature, by no means eaſy to be ſubdued. For it is by ſuch little unſuſpected beginnings, that this unfortunate habit is generally contracted, and, when once confirmed, rarely terminates but with life! Learn then, in time, to reſiſt this bewitching ſpirit whenever it tempts you. By this means you will ſoon find yourſelves ſo perfectly eaſy without it, as at length never to regret its abſence; nay, thrice happy in having eſcaped from the allurements of ſuch a dangerous and inſidious enemy.

3dly. Having thus far ſuggeſted means by which this vice may be prevented, or even remedied in its earlier ſtages, I now proceed to the more difficult part of my taſk,—the BOLD or the ARDUOUS attempt to reclaim the thorough-paced dram-drinker, whoſe habit has been contracted in youth, ſtrengthened by indulgence, and rivetted by time—a taſk apparently as impracticable as to waſh the Æthiopian white; or to diveſt the Leopard of his ſpots! Difficult undoubtedly it is, though by no means impoſſible,

poſſible, ſince I can venture to affirm, that every thing neceſſary to accompliſh it (unleſs he be greatly wanting in himſelf) is contained in two words, viz. to BEAR and to FORBEAR. Learn to BEAR then, from this moment, the *want* of your accuſtomed liquor; and to FORBEAR ever more even to *taſte* it: for it is not merely the want of *power* that enſlaves you to this groveling vice, but the want of *will*—the want of *reſolution*—and the want of *theſe* is the want of every thing requiſite to your cure.

Nor is the relinquiſhing this pernicious habit *ſuddenly* ſo dangerous a matter as you have been taught to imagine; otherwiſe, how comes it that certain perſons in your ſituation, who from being on a ſudden debarred the uſe of ſpirits, by long confinement in a well-regulated priſon, have not only been happily cured of the inveterate habit, but their health improved, and their life greatly prolonged? Inſtead of the ſlow, uncertain method of cure recommended by others, let me adviſe the following, which, if duly obſerved, you will find as effectual as it is expeditious. It is perhaps not yet too late, but muſt be begun without delay. Reſolve then, from this moment, by *one bold ſtroke*, to break the *inchantment* at once. Having placed a ſeal on your cellar door, or delivered up the key to a truſty domeſtic; let a memorandum be inſtantly drawn up in his preſence, and atteſted in due form, announcing your reſolution of renouncing all ſpirituous liquors under

a very

a very heavy penalty, during the full term of—ſuppoſe—two years. Let it be kept in your pocket-book under the title of RESOLUTION INVIOLABLE, and with it a copy of theſe rules, as a conſtant monitor. At the expiration of the term, I ſhall be happy to ſee an atteſted certificate of the engagement having been faithfully performed, and to ſuggeſt ſuch farther term of keeping the inſtrument in full force as may ſeem neeeſſary to complete the cure. During the above period, you may be allowed good Engliſh wines, beer, cyder, or perry, in moderation; but remember, not a drop of ſpirits of any kind muſt be taſted on any pretence whatever. Frequent cravings for the deluſive ſpirit, with other unpleaſant feelings, muſt and will ſometimes obtrude themſelves. Theſe, though not dangerous, are irkſome; they may however be baniſhed by an occaſional cup of ginger or ginſeng tea, or rather by briſk exerciſe and firm reſolution: but were theſe feelings a thouſand times more troubleſome, not an inch of ground muſt be yielded till you have gained a complete victory. To encounter difficulties, is valour—to vanquiſh a powerful enemy, conqueſt—but to conquer one's-ſelf, is glory, honour, and triumph!—A conteſt truly worthy of a rational being! Think how infinitely more ſevere is the penance which the Bramins, or the Monks of La Trappe, or Chartreux, thoſe unhappy votaries of ſuperſtition, voluntarily impoſe upon themſelves! The preſent

conteſt,

conteſt, remember, is not for an empty imaginary object, but for a real prize—a prize that is ineſtimable! not for the fading laurel or tinſeled wreath, for which others contend, but for thoſe more blooming, more *ſubſtantial honours*, which HEALTH, the DAUGHTER *of* TEMPERANCE, only can beſtow. For it is thine, O HEALTH, and THINE ALONE, to diffuſe through the human breaſt that genial warmth, that ſerene ſunſhine, which glows in the cheek, which ſparkles in the eye, and which animates the whole frame!

4thly. I come now to that claſs of veterans who, deaf to every intreaty, have arrived at the laſt ſtage of habitual dram-drinking; who to this vice have added infidelity, and abandoned themſelves wholly to debauchery; as if the taper of life could not be burnt out with ſufficient rapidity without being lighted at both ends! Bent upon what they call a "*ſhort life and a merry one*," (but which we ſhall venture to pronounce a ſhort and *miſerable* one) they will doubtleſs ſpurn at theſe rules and admonitions, and continue to run headlong to their ruin. It is in vain, then, to reaſon with ſuch deſpicable ſlaves, as can ſo tamely, and without one generous ſtruggle, give up every pretenſion to that *noble freedom* which dignifies *rational beings*, and which ought to be their *pride* as *Britons* and as *men!* Since vice, it ſeems, is more truly deſirable than virtue, poverty than plenty, and ſince even ſickneſs and remorſe are better than

health and ſerenity, you will wiſely reſolve to go on and complete your career. Nor ſhall I deign to ſtop you a moment, or conteſt the envied right to which you lay claim of ruining yourſelves in your own way. With minds depraved, and conſtitutions ſhattered, I perceive you are haſtening faſt to that "bourne from whence no traveller returns."

As you have probably long ceaſed to conſider yourſelves as accountable beings, it may now be deemed impertinent to revive your miſgivings, on that ſubject, or to daſh your fond hopes of taking ſhelter in non-exiſtence, by reminding you of the poſſibility of an HEREAFTER.——"To die—to ſleep —nay, perchance to dream—yes—there's the rub!" ——How great muſt be your ſurprize, ſhould you ſuddenly be rouſed from this dream! When the thick miſt is diſpelled,—When the day begins to dawn, and when you find yourſelf expoſed on the confines of that unknown country!—But what muſt be your conſternation, when on a ſudden the veil is drawn aſide, and at once diſplays to your aſtoniſhed eyes * * * * *!!——

——— ———But here let us pauſe!—It is not for mortals to preſume to penetrate into the myſteries of the inviſible world—or to unfold the ſecrets of futurity. Neither is preaching my province. To the inſpired Divine, it belongs to reſume the ſubject where I am obliged to drop it, and to expatiate on thoſe higher arguments, which, with a trembling

trembling pen, I have ſcarcely ventured to ſuggeſt! His dignified office it is to enforce them with ſuch peculiar energy, as may carry conviction home to the boſoms of ſuch hardened offenders: to prepare them, while here on earth, for the awful ſcenes of *futurity*; and finally, to admoniſh others that are ſtill addicted to this vice, to take *warning* by their *ſad example!*

Article X.

A Correſpondence on the ſubject of Burnt Ears in Wheat, which lately took place in a provincial Paper: communicated by a GENTLEMAN *who was of opinion ſome uſeful Hints may be conveyed in them, and as ſuch, recommended for publication in this work.*

LETTER I.

I AM a farmer in the vicinity of Northampton, and have often received conſiderable injury by having burnt wheat, or what we farmers call Bunty Wheat; notwithſtanding I have made uſe of different kinds of ſteeps to prevent it, moſt of which have in ſome years ſeemed to anſwer, in others they have failed, therefore cannot be called infallible preventives. I could therefore wiſh to aſk, through your paper, *what is the real cauſe of Burnt Ears in*

Wheat, or *Bunty Wheat?* When the cauſe of any diſeaſe is known, there is ſome probability to effect a cure; when unknown, all applications are a mere leap in the dark; whether they do good or harm is, I conceive, an equal chance. Any gentleman that will be kind enough to point out the cauſe, and if he will add, what is preſumed to be a cure, it will be eſteemed a favour by wheat-growers in general, but particularly by

FARMER SLOUCH.

LETTER II.

PERMIT me, through the channel of your paper, to give *Farmer Slouch* an anſwer to his letter reſpecting bunty wheat. Every one will agree with him, that the cauſe of a diſeaſe being aſcertained a greater probability of effecting a cure follows, than when men preſcribe under the difficulties of darkneſs and ignorance. Perhaps, in what follows, the inquirer may not meet with all the ſatisfaction he wiſhes for in ſo ſerious a matter. Nevertheleſs, as it has greatly weighed with me, I take the liberty of offering it to his notice. At this moment of writing, I cannot ſay to what author I am obliged for the remark, but am inclined to think I met with it in Tull's huſbandry.

Black

Black ears in wheat, barley, &c. ariſe from ſeed imperfectly ripened; and though ſuch imperfect ſeed may ſink in a ſtrong brine, yet have they not the vegetative principle ſufficiently vigorous to perfect their ſpecies. Moſt farmers are anxious to ſow *new* ſeed; whereas, would they give the preference to ſeed of one or two years date, none but the healthy and ſtrong would vegetate and grow, the ſeed that was imperfect rotting in the ground, or upon its ſtriking root, yet dying afterwards before the ear was formed; whereas in new ſeed, that is, of the laſt harveſt, the vegetative principle may be juſt ſufficiently ſtrong to cauſe the roots to ſtrike, and the blade to grow, but not powerful enough for perfecting the ear. Nothing contributes ſo ſatisfactorily to our knowledge as experiment, and reference to matter of fact.

I doubt not but, in this ſeaſon, every obſerver will find, both in his wheat and barley, ears of ſmut or black powder, even though he has been at the pains and expence of changing his ſeed, and procuring the beſt the market afforded; and if this obſervation hold not in every diſtrict, the good fortune of an eſcape from the evil may be attributed to what has been advanced, the beſt ripened corn might have been ſown.

It is in every one's recollection, that the grains of laſt year were not in general good; the prevalence of a wet atmoſphere at the time of blooming, deſtroying

ſtroying the farina of the male flowers, and hence light or lean ears of corn. A reference to maltſters and millers might tend to elucidate the obſervation.

I ſhall only add, that in regard to melon ſeeds, thoſe are preferred by gardeners, which have been preſerved five or ſix years, perhaps more; new ſeed, I apprehend, producing plants greatly luxuriant in vine, with male and female flowers ſo defective, that practitioners cannot ſet the fruit: in one of the volumes of the Philoſophical Tranſactions, an account is given of melon ſeed being good after forty years keeping.

A LOVER OF AGRICULTURE.

LETTER III.

THE real cauſe of Burnts or Bunts in wheat has puzzled many; and I believe very few perſons, for want of philoſophical knowledge, have been able to point out the true reaſon for it, upon principles whereby it may be diſcovered. Mr. Fletcher, of Sheffield,* has given the following obſervations, which appear to me very pertinent; and being in the hands of but few, may prove acceptable to ſome of your readers.

* See Gentleman's Scientifical Repoſitory, vol. i. p. 111.

" *Burnts*,

"*Burnts*, or *bunts*, are occaſioned by a number of nitrous, ſulphureous, and heterogeneous particles; theſe particles, when mixed together, cauſe a fermentation; whence the aqueous and more ſimple parts are diſſipated, and the other more denſe, corroſive corpuſcles are formed in drops, and fall upon the tender buds of corn; and being ſuſceptible of abſorbing the ſolar rays, burn and deſtroy them. As to preventing or eradicating *burnts* or *bunts*, it ſeems an impoſſibility, they being neither an accidental nor paraſitical malady; but thoſe lands which abound with mineral exhalations, are moſt ſubject to this malignant deſtructive malady, and particularly when the ſeaſon is hot."

J. B---H.

LETTER IV.

THE two anſwers you have received to Farmer Slouch's requeſt, concerning *bunty wheat*, do not appear to me, and to many farmers, any ways ſatisfactory, as they both ſeem to proceed from the chimeras of ſpeculative farmers, and not from thoſe who have derived any real knowledge from experiment. "*A Lover of Agriculture*" recommends old ſeed for ſowing, (which perhaps may have loſt its vegetative principle) as the beſt means to prevent

vent bunts; but ſurely the ſame reaſon will hold good with reſpect to good ſeed as bad. If the defective ſeed decay when old, ſurely the good cannot receive any improvement; the knowledge a perſon receives from Tull's huſbandry can never be of any uſe to the experimental farmer; the peruſal may amuſe the idle and the futile, but can never contribute any thing towards publick utility.

J. B---h's Philoſophical Reaſons, &c. ſeem to have been fabricated by Mr. Fletcher, on purpoſe to anſwer a query at a certain time; they caſt very little light on the ſubject; for what do farmers in general know of *nitrous, ſulphureous, and heterogeneous* particles? It is my opinion (and not my opinion only, but what I have acquired from repeated experiments) that the cauſe in general of bunts in wheat, proceeds from a neglected cultivation of land, and not being careful to procure the pureſt kind of ſeeds, and not previouſly preparing it with brine, lime, &c. with which almoſt every farmer is acquainted.

I will beg leave to recommend to farmers in general, to ſheep-fold as much of their land as poſſible that is intended for wheat, as that is more beneficial than any other kind of manure;—keep the land clean from weeds, and I truſt, by a perſeverance in this practice, there will be but little cauſe of complaint about bunts in future.

S——.

LETTER V.

In anſwer to Farmer Slouch, reſpecting the occaſion of *bunty* wheat, I beg you will inſert the following, a due obſervance of which, I am perſuaded from my own ſtudy, will prevent it:—Let the farmer ſet his labourers to draw from the ſheaves, before they are threſhed, all the primeſt and beſt of the ears of one colour, either red or yellow Lammas (I believe the red Lammas is the beſt). Sow an acre or two of this wheat for his own ſeed the next year, and do this every third or fourth year; by this rule he will have all his wheat of one colour, and without doubt free from the diſeaſe of ſmut, for it is the underling ears, and the poorneſs of the land, that cauſe wheat to degenerate and turn to ſmut.

If the method of picking all ſorts of corn for ſeed were in general uſe, it would prove the greateſt ornament to the field, and improvement in the farming buſineſs, ever yet found out.

AN IMPROVER OF NATURE.

LETTER VI.

Not ſeeing any ſatisfactory anſwer in your paper, reſpecting the cauſe of *Burnts* induces me to ſay that I believe the cauſe is an inſect.

Malpighi,

Malpighi, and ſeveral other celebrated writers, inform us, that "Inſects take particular care to "depoſit their eggs or ſeed, in ſuch places where "they may have a ſufficient incubation, and where "the young, when hatched, may have the benefit "of proper food, till they become able to ſhift for "themſelves; thoſe whoſe food is in the water, lay "their eggs in water; thoſe to whom fleſh is a proper "food, in fleſh; and thoſe to whom fruits, or leaves "of vegetables are food, are accordingly depoſited, "ſome in this fruit, ſome on that tree, ſome on one "plant, and ſome in another, but conſtantly the "ſame kind in the ſame plant; as for others that "require a more conſtant and greater degree of "warmth, they are provided by the parent animal "with ſome place in or about other animals; ſome "in the feathers of birds; ſome in the hair of "beaſts; ſome in the ſcales of fiſhes; ſome in the "noſe, ſome in the fleſh; nay, ſome in the bowels "and inmoſt receſſes of man, and other creatures. "And as for others to whom none of theſe modes "are proper, they make them neſts by perforation "in the earth, in wood, and the like, carrying in "and ſealing up proviſion that ſerves both for the "production of their young, and for their food "when produced." CHAMBERS.

Granting the above to be true, it may not be unreaſonable or unnatural, to ſuppoſe ſome inſect may depoſit

depoſit its eggs or ſeed on wheat when growing, and that if that egg, eggs, or ſeed, be not killed before the corn is buried in the earth, it may there, after proper incubation, become an inſect, and feed upon the tender root of the plant; and as I conceive every corn in an ear of wheat has a capillary tube, that conveys food from the root to that particular corn, if that conveyance be ſtopt by the inſect having wounded or injured the tube; perhaps the corn, (the flour that ſhould be) for want of proper food, may corrupt and become a black fetid powder, or what we farmers call burnts or bunts: or it may not be unnatural to preſume that the fæces, effluvia, reſpiration, or rather the expiration of the inſect, may in ſome meaſure taint the juices with which the plant is fed, and be a means of producing, in the ears, corns filled with a black rancid powder, inſtead of a ſweet white flour; or that the minute animalcules may inſinuate themſelves into the tubes of the plant, and aſcend with the food into the huſk or bran of the corn, and, not having ſtrength ſufficient to break it, may by its effluvia, &c. or death, occaſion the fetid ſmell and dark colour. If part of the tubes only are injured by the inſect, part of the corns in the ſame ear may be burnt, the other part good; but in general, nay, I never found a burnt ear of wheat coming from any particular root, but that all the ears coming from the ſame root were more or leſs burnt alſo.

alſo. If the ſtem of a burnt ear be cut juſt above the root, it will be found conſiderably harder than that of a ſound one; probably the juices of the one may be ſtopt, by the inſect having injured the tubes, and continuing to aſcend in the other, may occaſion the difference.

Impreſſed with the idea, three years ſince, that inſects are the cauſe of burnts, I tried the following experiments in the middle of a twenty-acre cloſe; the reſidue of the ſaid cloſe was ſowed with the ſame kind of wheat, and treated in the ſame mode, as No. I. and II. and was equally as clean, and my crops have been ſo ever ſince: my mode of medicating my wheat is No. II.

No. I. Sowed five drills (with Mr. Cooke's machine) with wheat treated agreeable to Mr. Middleton's recipe.

No. II. Sowed five drills, with wheat wetted with old urine, three quarts to a buſhel, and turned about with a ſhovel till all the urine was imbibed, then plenty of quick-lime ſifted over it, and turned over and over with a ſhovel, and left in a heap till next morning.

No. III. Sowed five drills with wheat ſteeped two hours in a ſtrong lye, made of wood-aſhes and lime, and laid on the barn-floor to dry.

No. IV. Sowed five drills with the ſame kind of wheat, *dry*.

RESULT.

RESULT.

No. I. and II. ſcarce a burnt to be found in them.

No. III. about a twentieth part burnt.

No. IV. near a fourth burnt.

No. V. Picked ten good corns out of an ear, the remainder were burnt; planted them in the garden; ſix only vegetated, which produced 72 ears, *one* root of which only was burnt, conſequently the opinion that the good corns in a burnt ear produce burnts again is fallacious, otherwiſe the whole muſt have been burnt.

The above experiments ſeem to ſay that wetting wheat with old urine, and drying it with lime, is a preventive; and I conceive that an inſect, by depoſiting its egg, eggs, or ſeed, on the corn when growing, is the *cauſe of burnts*. Suppoſing this to be the caſe, the wetting the corn with brine, urine, or ſtrong lye, would of courſe deſtroy ſome of the eggs or ſeed, or even an animalcule, and the lime by its corroſive quality annihilate the remainder; but ſhould any of the eggs, &c. remain on the corn animable, there may be here and there a Burnt in the crop. But if on the other hand the inſect ſhould depoſit its egg, eggs, or ſeed, in the earth, it is poſſible the brine, urine, and lime, wherewith the corn is as it were coated when ſowed, may be unpleaſing to the delicate taſte of the little animal, and prevent its wounding the tubes of the plant.

If

If any concluſion may be drawn from the experiments herewith accompanied, I ſhould think that "A Lover of Agriculture" is not right in ſuppoſing the cauſe of burnts ariſes from corn not perfectly ripe, or impregnated with the farina of the male, becauſe the trials above were ſown with the ſame ſeed on the ſame land; and think I may be allowed to ſay at the ſame time; No. I. and II. were without burnts, No. III. and IV. had plenty of them. If the weak or unripe corns had produced burnts, of courſe they would have been in No. I. and II. as well as in No. III. and IV. unleſs we preſume that urine and lime have a power of preventing the vegetation of the weak or unripe corns; and if they have a power to prevent the vegetation of the weak or unripe corns, it is not unreaſonable to ſuppoſe they may in ſome meaſure weaken the good, and be a means of giving birth to the very diſeaſe intended to be extirpated; which in practice I have not found to be true.

Reſpecting J. B---h's reaſon given for the cauſe, it is true it is philoſophic, and, from common obſervation only, I ſhould have concluded it was the true one; but a too intimate acquaintance with burnts, obliges me to diſſent. If the cauſe came from the atmoſphere, I ſhould think it ſingular indeed if *ten* rows in the middle of a twenty-acre cloſe received the *whole* of the malady, and the other part of the corn growing on each ſide none at all.

If

If nitrous drops, &c. were the cauſe, they would be more diffuſive, nor would it be in the power of any noſtrum to prevent it, which experience contradicts.

In anſwer to S——, and "An Improver of Nature," I muſt beg leave to ſay, that if the former cultivates a piece of land in the beſt manner poſſible, and the latter picks ſome wheat from the beſt ears he can procure, and ſows this picked wheat *dry*, on this highly cultivated ſoil, I have not a doubt but the produce will be bunty; but if wetted with brine or urine, and well limed, the reverſe; in ſhort, I look upon *lime* to be the *grand ſpecific* to remove the *cauſe of burnts*. As brining and liming wheat before ſown, is univerſally practiſed, and I believe juſtly acknowledged to remove the cauſe of burnts, it naturally leads to an enquiry of what that cauſe can be, and where lodged, that brine and lime, urine and lime, or water and lime, have a power of annihilating; and I muſt confeſs I cannot ſee a more probable cauſe, than that it is an egg, eggs, or ſeed, lodged on the corn by an inſect, and if ſo, the plump corn is as liable to contain them as the thin, and the well-tilled land to give them birth, nurture, and maturity, as the bad. I have had as clean and full a crop from ſaiting burnty wheat, as from the beſt I ever ſowed.

The preceding are my ideas, reſpecting the cauſe of burnts.

FARMER SLOUCH.

Article XI.

On the Conſtruction of Reſervoirs to preſerve the liquors from Stables, Cattle-Stalls, &c.

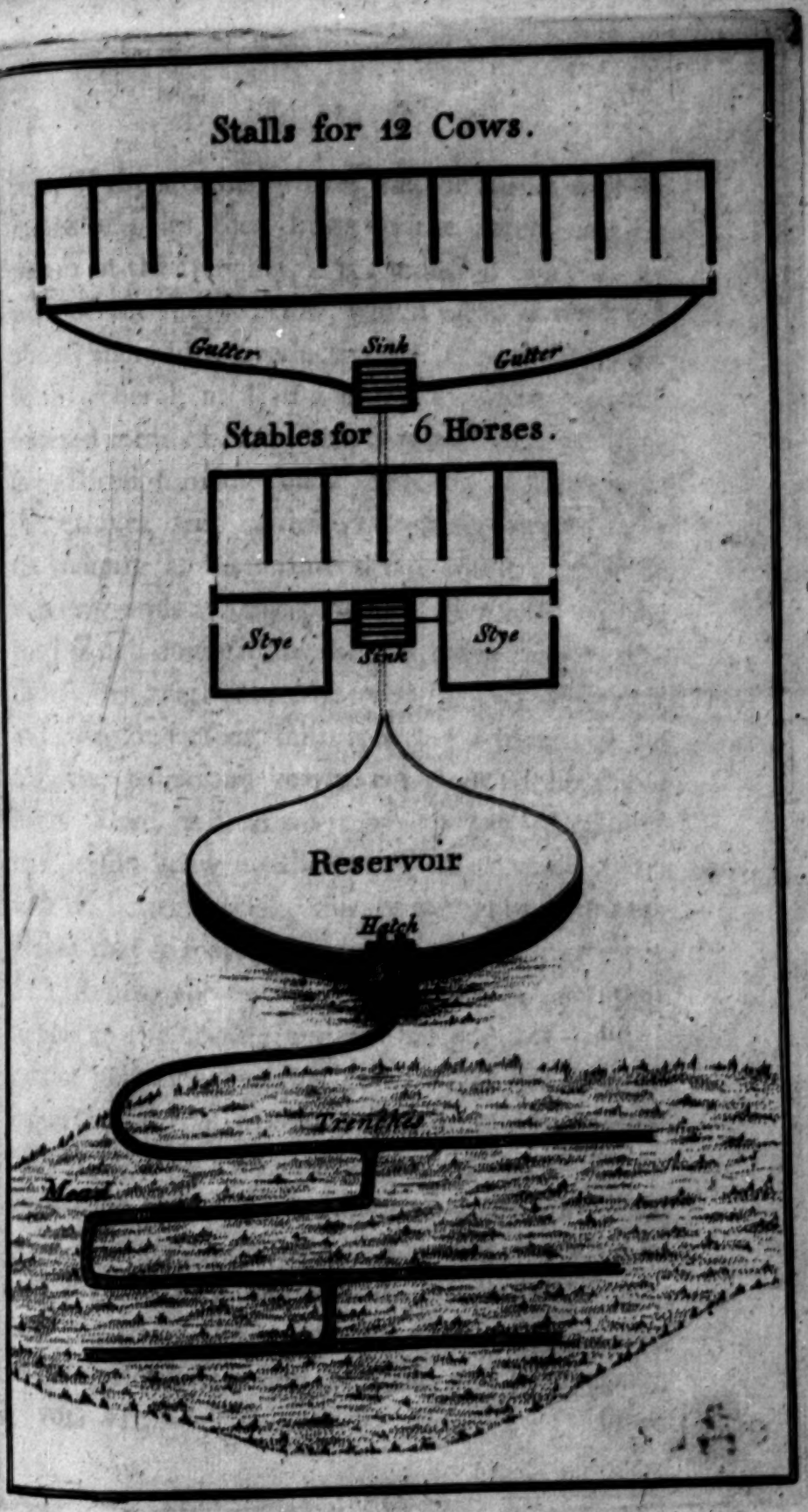
[With a Copper-plate.]

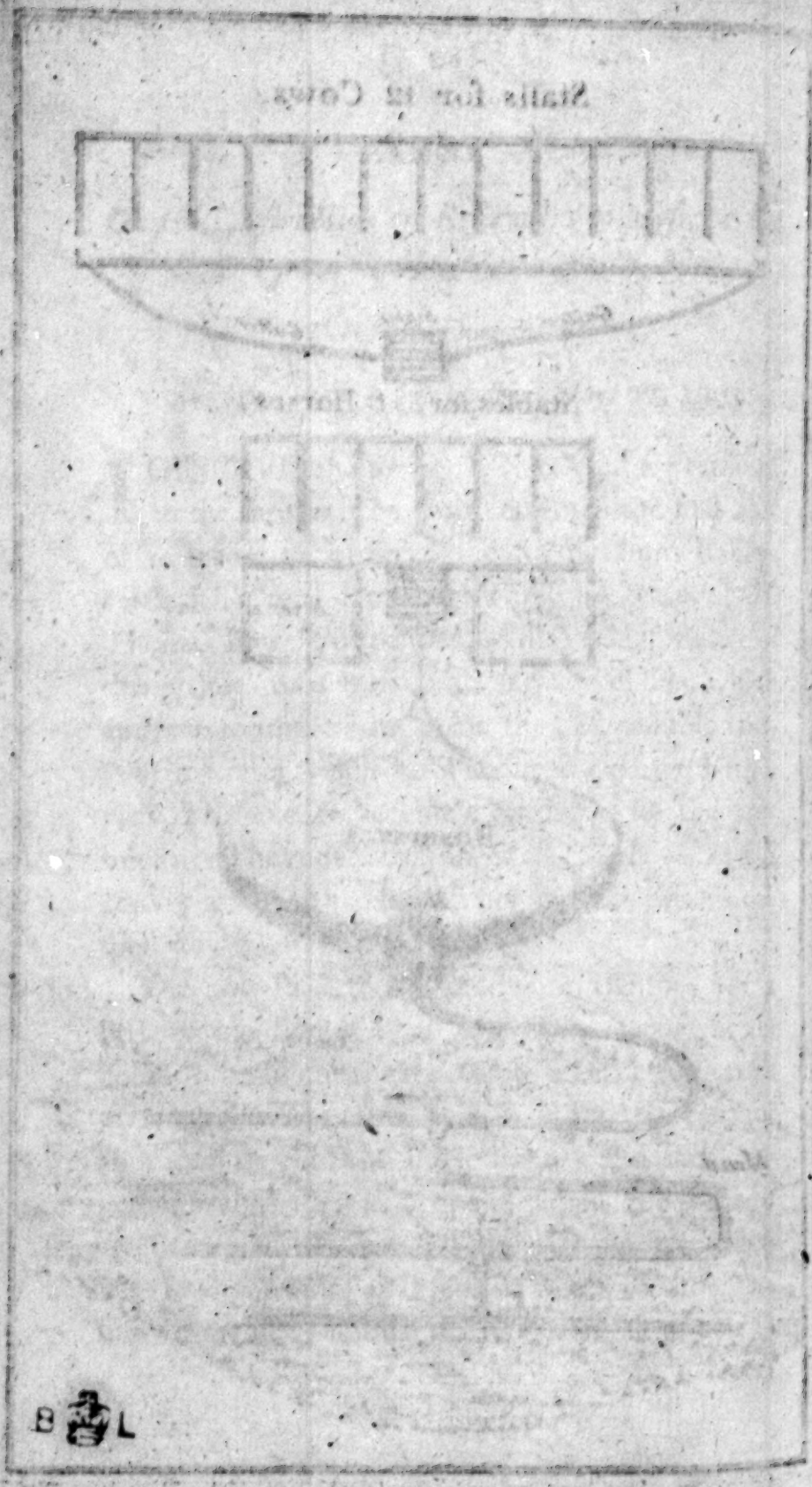
DEAR SIR, *Shoſton, May*, 27, 1793.

I OBSERVE the ſociety have offered a premium to the farmer who ſhall conſtruct the beſt ſort of reſervoir to preſerve the liquor from ſtables, cattle-ſtalls, &c. A farmer who is my patient (Mr. Thomas Powell, of Semley, Wilts) taking notice of this article, took me out to ſee one of his, which appears to me to be upon the beſt poſſible conſtruction, and which he is about to enlarge, with a view, I believe, to become a candidate for the premium. The rude ſketch annexed, [*ſee the plate*] will convey a ſufficient idea of his method, which the ſpot very much favours.

The cow-ſtalls ſtand nearly on the top, but a little on one ſide of a nap, and by means of gutters behind, the liquor is carried into a ſink which runs under the ſtable, where it meets, by the help of another ſink, with the ſtable liquor; and theſe, together with the liquor of the pig-ſties, run through an under-ground drain into the reſervoir, into which Mr. Powell throws all kinds of weeds or other refuſe vegetable or animal matters, where it of courſe

rots;


Stalls for 12 Cows.
Gutter
Sink
Gutter
Stables for 6 Horses.
Stye
Sink
Stye
Reservoir
Hatch
Trenches
Main



rots; if the weather proves wet, he ſtirs it well by means of poles, then draws up the hatch, and by means of the trenches, it is conducted to all or any part of the mead below, which mead is rendered almoſt incredibly productive by it; and the whole is, in general, at leaſt a month before any of the watered meads I have ſeen, though I have occaſion to go through many almoſt every day. If the weather proves dry, he throws the reſervoir and caſts the manure at his leiſure where wanted. Simple watering undoubtedly produces wonderful effects, but I much doubt if any thing equal to this; nevertheleſs my neighbour Mr. Weſt, a very obſerving and diligent farmer, tells me that a friend of his took the pains one year to carry out all his ſtable liquor *alone, without obſerving any good effect*, and this perſon knew another who had done the ſame with no better ſucceſs; this, however, by no means proves that it may not be an excellent ingredient for haſtening the putrefactive proceſs, in a compoſt ſimilar to the above; and in that point of view, I cannot help thinking that the object of the ſociety's inquiry is fully anſwered, in the plan of Mr. Powell, namely, that of converting ſtable, cow, pig liquor, &c. to the *moſt uſeful purpoſes*, and at the *ſmalleſt expence*. In very large farms, it is eaſy to conceive that this plan might be extended, if the ſtables, &c. were placed on the centre of a knoll or nap; three or four reſervoirs might be made, and by ſtopping

ſome drains and opening the other, the liquor might be directed one year to this, and another to that ſide of the hill, as it was moſt wanted.

Mr. Powell alſo deſired me to notice his home garden, where every thing was in ſtrong vegetation, and no trace was to be ſeen of the effects of the ſlug, and another at ſome diſtance where every thing was disfigured, and many almoſt eaten up by that inſect. This he aſcribes, and ſeemingly with reaſon, to a compoſt (with which the home garden is manured) formed by all the refuſe of his premiſes, viz. all the *ſoot*, *hen-dung*, *chamber-lye*, ſweepings of the home-yard, hackney-ſtable, &c. promiſcuouſly thrown together. Hence is it not probable that many kinds of manure operate by *deſtroying impediments* to vegetation, rather than by *furniſhing* the means by which it is promoted—the food of plants?

It is remarkable that there are two ſcrubbed apple-trees in this garden, which never fail to bear; I have known them theſe eight years, and do not recollect their failing to blow once; this alſo Mr. Powell aſcribes to the plenty of manure, which they receive in common with the reſt of the garden.

One other remarkable circumſtance occurred in my converſation with Mr. Powell: he ſays, that when he was a ſchool-boy, (in the year 1764) he remembers that his father had a field of beans, which appeared ſo bad from the bite of ſome inſect, that he was on the point of ploughing it up: he thought

thought however he would firſt try the effect of *rolling it by night*, which *was a very common practice in the pariſh at that time.* The conſequence was, a ſpeedy improvement in the appearance, and the final reſult a crop of 12 ſacks of beans per acre. Thomas Oliver, a labourer who ſtill works for Mr. Powell, aſſures me that he threſhed three ſacks per day, and that he could eaſily have done more, and remembers that one ſtalk had upwards of 150 pods on it.

I am afraid you will find me a very troubleſome correſpondent, but from the very handſome manner in which the ſociety has adopted me, I ſhall always eſteem it my duty to forward their views even by the moſt ſlender efforts.

I remember to have ſeen in a former premium book, that the ſociety either offered a premium, or requeſted the aſſiſtance of gentlemen, to aſcertain the *ſynonims* of apples, or the different names by which they are known in different places, their reſpective merits either as cyder or table fruits, and the time they will reſpectively keep; the whole with a view to correct the fruiting of orchards. This is an object which I have long had in contemplation, and by means of a ſmall nurſery in my poſſeſſion, I hope to contribute my ſhare to this deſirable purpoſe. I have had thoughts of deſiring ſome intelligent rider to take notice, in the different counties of the different apples, and the names by

which they are known; but I am afraid it would be impoſſible to find one who would unite ſufficient zeal with ſufficient knowledge of the ſubject.

It has, however, occurred to me that the object may be accompliſhed (if it has not been already done) in a more certain and ſimple manner by the ſociety itſelf. I have collected a liſt of, I believe, moſt of the names of apples in Somerſetſhire, Dorſetſhire, and Wiltſhire, and have arranged them as far as I can at preſent learn, in the order of their ſuppoſed ſuperiority, either as cyder or table fruit; it is my intention, if I can find time, to procure in the enſuing ſeaſon, about three ſpecimens of each ſort, the largeſt, the medium, and the ſmalleſt ſized, to mark the name on each ſort, and ſend them carefully packed to the ſociety; if you could at the ſame time time prevail on ſome friend in the counties of Hereford, Glouceſter, Worceſter, and Devon, reſpectively to do the ſame, the ſociety would be able to aſcertain what number of diſtinct ſpecies there are, by how many different names they go, and the relative merits of each.*

The ſociety's premium for making the greateſt number of ſorts of cyder, each made only from one ſort of apple, is, I think, likely to be attended with

* This buſineſs has been proceeded in with ſome attention and ſucceſs; but more are expected from a future continuation of the ſociety's endeavours.

very

very good effects; but there are ſeveral ſorts of apples whoſe ſuperiority is already well known, the multiplication of which would be very deſirable; a ſmall premium offered to the nurſeryman, who ſhould in any year graft the greateſt number of theſe ſorts, (not leſs than a certain number) would perhaps tend more ſpeedily to correct the fruitings of orchards, than any other means; for here (as in the rotten boroughs) the demon of corruption begins his work. The object of the nurſeryman is in general to take ſuch grafts as make the moſt rapid ſhoots; and my nurſeryman, in common with the reſt, laughs at the idea of my ſcrupulouſly attending to the excellence of the ſorts; theſe grafts are therefore often from the worſt ſorts of apples, (for ill weeds grow apace.) But the honour and the amount of a ſmall premium, which would defray the expence of grafting a great number of ſtocks, would probably very much counteract this practice, and by laying the axe to the root of the tree, one part of the ſociety's object would be immediately obtained.

I am, dear ſir,

Your much obliged friend,

R. PEW.

Article XIV.

Addreſs to the Landholders of this kingdom; with Plans *of* Cottages *for the habitation of Labourers in the Country, calculated to ſave the Expence of the Builder as much as is poſſible, without injuring the Health or Comfort of the Inhabitants thereof.*

By THOMAS DAVIS,

STEWARD TO THE MARQUIS OF BATH, AND TO THE RIGHT HON. LORD CARTERET.

IT being allowed, that manual labour is, and always will be neceſſary, for the cultivation of land; it follows that houſes, for the habitation of thoſe who are to perform that labour, are indiſpenſable.

If the inhabitants of theſe houſes are in health and able to work, they will be able to ſupport themſelves by the hire of their labour. If they are not, they become a burthen to the pariſhes to which they belong, and the laws will oblige the landholders to maintain them. To preſerve the health and ſtrength of theſe *poor*, but *neceſſary* fellow-creatures, is therefore not only the duty, but the intereſt of the landholders. Men of feeling will endeavour to do this from *principle*. Men without feeling (if ſuch men there are) will find it their *intereſt* to do it. The firſt ſtep towards this neceſſary purpoſe,

is

is that of providing proper habitations for them. Humanity ſhudders at the idea of an induſtrious labourer, with a wife, and perhaps five or ſix children, being obliged to live, or rather to exiſt, in a wretched, damp, gloomy room, of ten or twelve feet ſquare, and that room without a floor; but common decency muſt revolt at conſidering, that over this wretched apartment there is only *one* chamber, to hold all the miſerable beds of this miſerable family. And yet inſtances of this kind (to our ſhame be it ſpoken) occur in every country village. How can we expect our labourers or their families to be healthy, or that their daughters, from whom we are to take our future female domeſticks, ſhould be *cleanly*, *modeſt*, or even *decent*, in ſuch wretched habitations?—To remedy this ſerious grievance, the following plans of cottages for the habitation of the labouring poor in the country, are ſubmitted to the ſociety.

Plans of cottages may be drawn, and calculations made to build them, at a leſs expence than theſe herewith ſent to the ſociety; but the writer of this pledges himſelf, from the reſult of long experience, that nothing leſs than fifty pounds for a ſingle cottage, or ninety pounds for two dwellings under one roof, (even in the Weſtern counties, where materials and workmanſhip are cheaper than in many other parts of England) are ſufficient to build cottages

that

that are comfortable, or even healthy, or ſuch as a humane landholder would wiſh to build, or an induſtrious labourer with a decent cleanly wife and family, would, if they could poſſibly help it, inhabit.

As the health of the inhabitants is certainly the firſt object to be conſidered in building houſes, and as a free circulation of air is allowed to contribute very eſſential thereto; the lower rooms in all theſe plans of cottages are at leaſt ſeven feet high under the beams, and the upper rooms at leaſt ſix feet eight inches.

And as every humane builder of cottages would wiſh to make them as comfortable as poſſible, where it can be done at a ſmall additional expence, a chamber-chimney is drawn in the greateſt part of the following plans.

The plans of cottages on the plates annexed, and hereafter deſcribed, have in part been already executed by the Marquis of Bath, part by Joſhua Smith, eſq; and the reſt are new deſigns.

The eſtimates of building them are calculated, ſuppoſing them to be built with the rough ſtone of the neighbourhood, and with elm or fir timber, and covered with thatch.

The rooms on the ground-floor are all ſuppoſed to be paved with rough ſtone or brick: the walls of

all

all the rooms to be plaiſtered, and all the upper rooms to be cieled.

As ſome gentlemen may wiſh to build cottages in parks or plantations, to ſerve in ſome degree as ornaments thereto; part of theſe deſigns are calculated for that purpoſe, with very little addition to the expence.

N. B. As the materials uſed in building cottages differ ſo very materially both in their kind and price in different parts of the Weſtern counties, (much more ſo than in more expenſive buildings) and as the price of labour is frequently low where the price of materials is very high, and vicè verſâ; the collector of theſe plans thought it would be moſt likely to meet the wiſhes of the ſociety, to ſelect ſuch as contain the greateſt quantity of *convenient* room, with the leaſt quantity of materials, and to give a *round ſum* at which they may *in general* be executed in the Weſtern counties, inſtead of entering into a detailed eſtimate of the particulars, as the latter muſt be local, and can only hold good in particular ſituations.

PLATE I.

PLAN

OF

A PLAIN USEFUL COTTAGE

OF TWO STORIES,

Containing three rooms below, and two above, with a ſkilling behind for fuel.

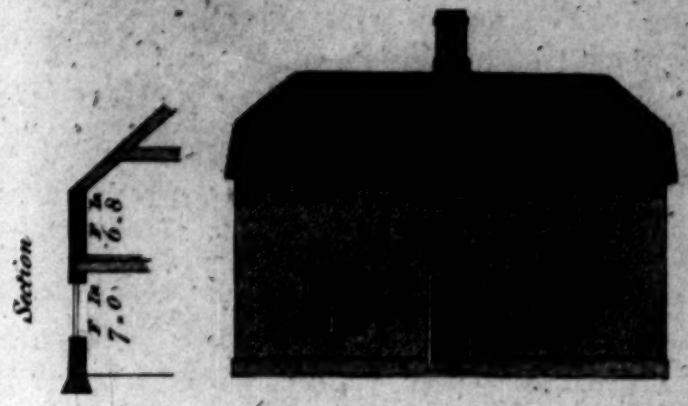
The chambers lighted from the ends, by windows in the gables, and the roof finiſhed with a half-coot over the windows,

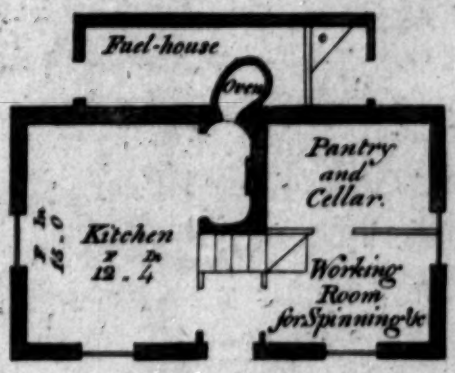
ESTIMATE, *FIFTY POUNDS.*

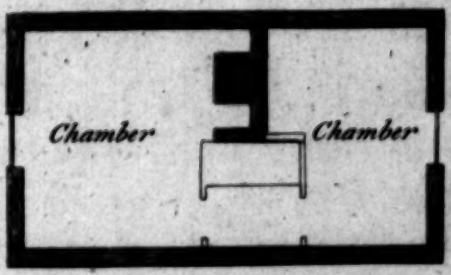
This plan is the moſt ſimple that can be contrived, to have *two* bed-chambers.

The Room, marked Working-Room, will be neceſſary to ſpin in by day, to put by the ſpinning-wheels when not in uſe, and in countries where there is no manufacture, will be uſeful for a cleanly houſe-wife to waſh in, &c.

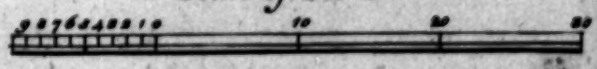
N°1. Cottage with two Rooms on a Floor.







Scale of Feet.



Hibbert. Bath. Sculp:

PLATE II.

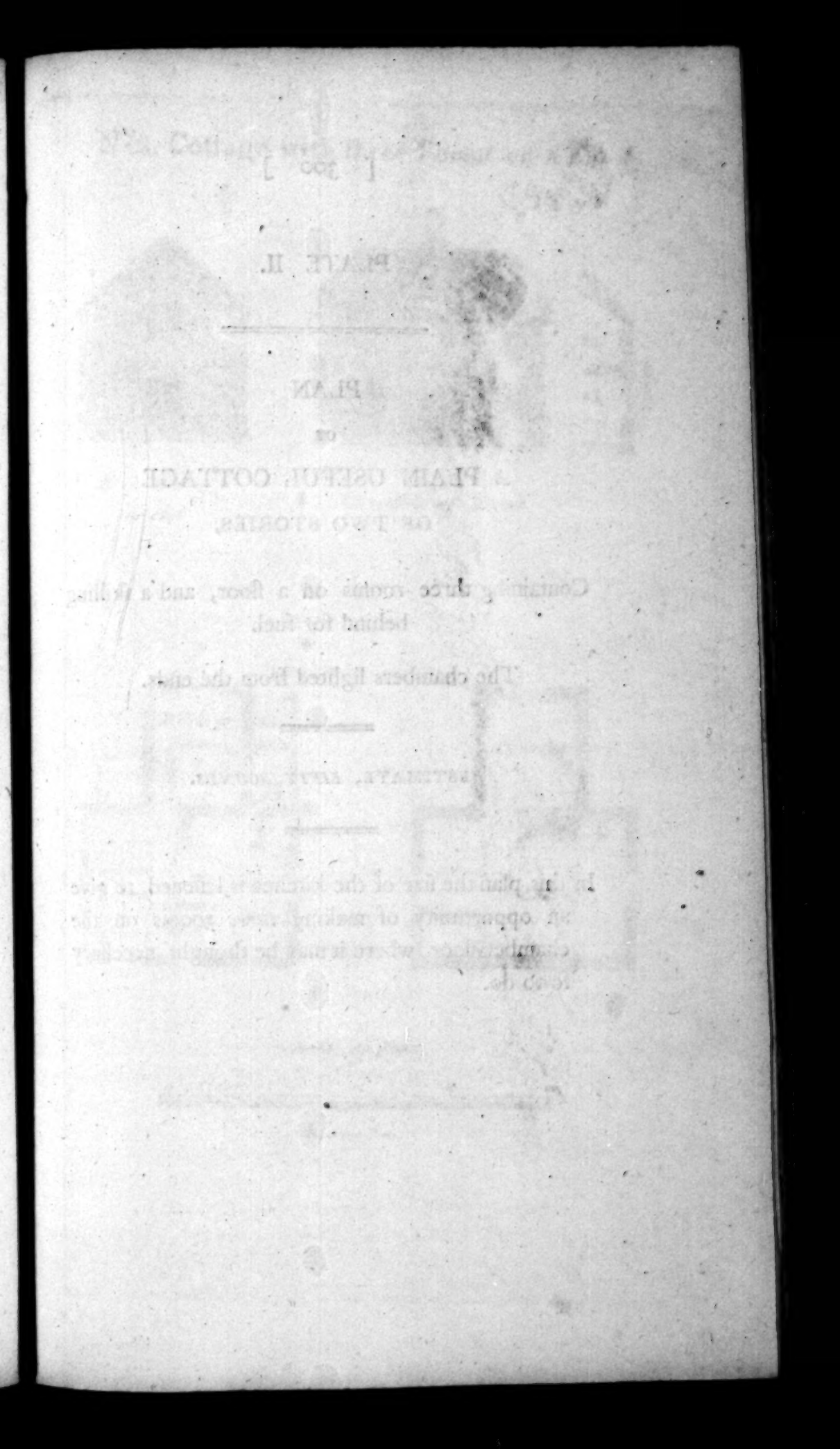


PLATE II.

PLAN

OF

A PLAIN USEFUL COTTAGE

OF TWO STORIES,

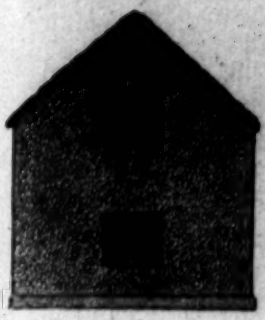
Containing three rooms on a floor, and a ſkilling behind for fuel.

The chambers lighted from the ends.

ESTIMATE, *FIFTY POUNDS.*

In this plan the ſize of the kitchen is leſſened, to give an opportunity of making *three* rooms on the chamber-floor, where it may be thought neceſſary ſo to do.

N°2. Cottage with three Rooms on a Floor.

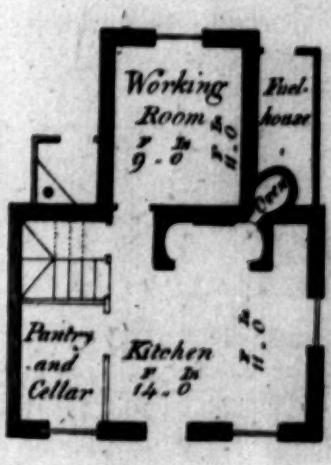


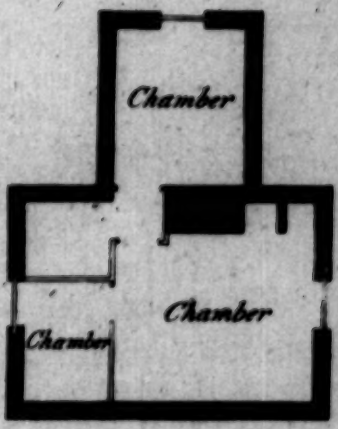
Elevation of one end



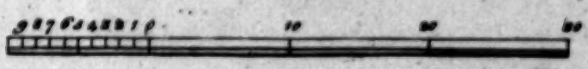
Elevation of Front







Scale of Feet



Hibbert, Bath. Sculp.

N°2. Cottage with three Rooms on a Floor.

B L

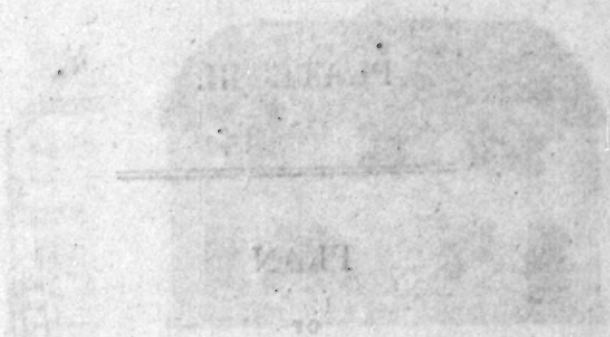


PLATE III.

PLAN

OF

AN USEFUL AS WELL AS ORNAMENTAL

DOUBLE COTTAGE,

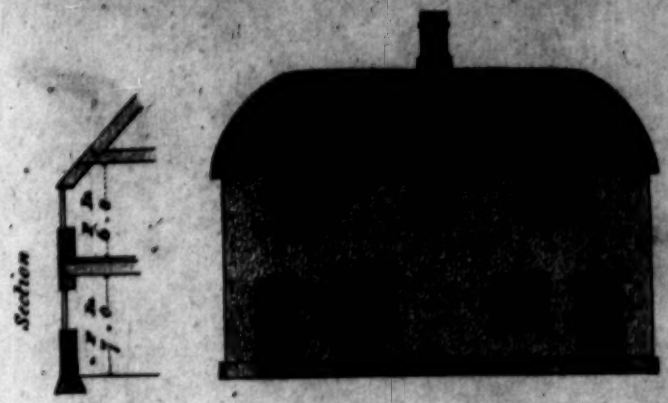
Each dwelling containing two rooms on a floor, the pantries and fuel-houſes being ſkillinged behind.

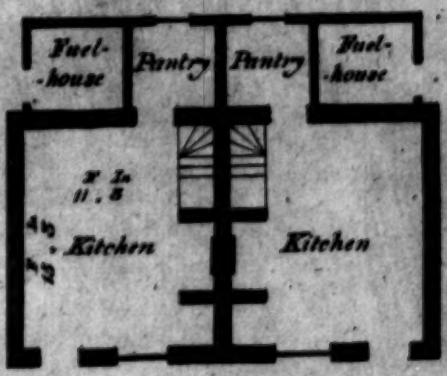
Or this cottage may be executed *plain*, with horizontal eaves, and plain ſquare chamber-windows.

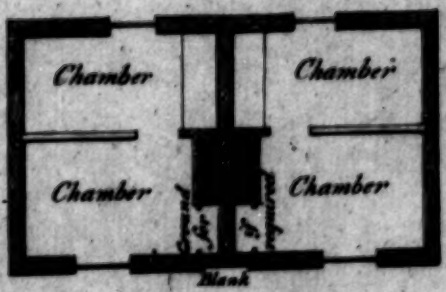
ESTIMATE, *NINETY POUNDS.*

The ground plan of this cottage is the moſt ſimple, and perhaps the ſmalleſt that can be contrived for *two* families. The elevation (if not approved) may be altered at diſcretion.

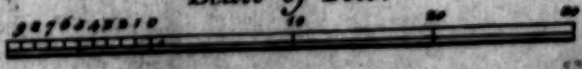
N°3. Small Double Cottage with Skilling behind.







Scale of Feet.



Ellicot. Bath. Sculp.

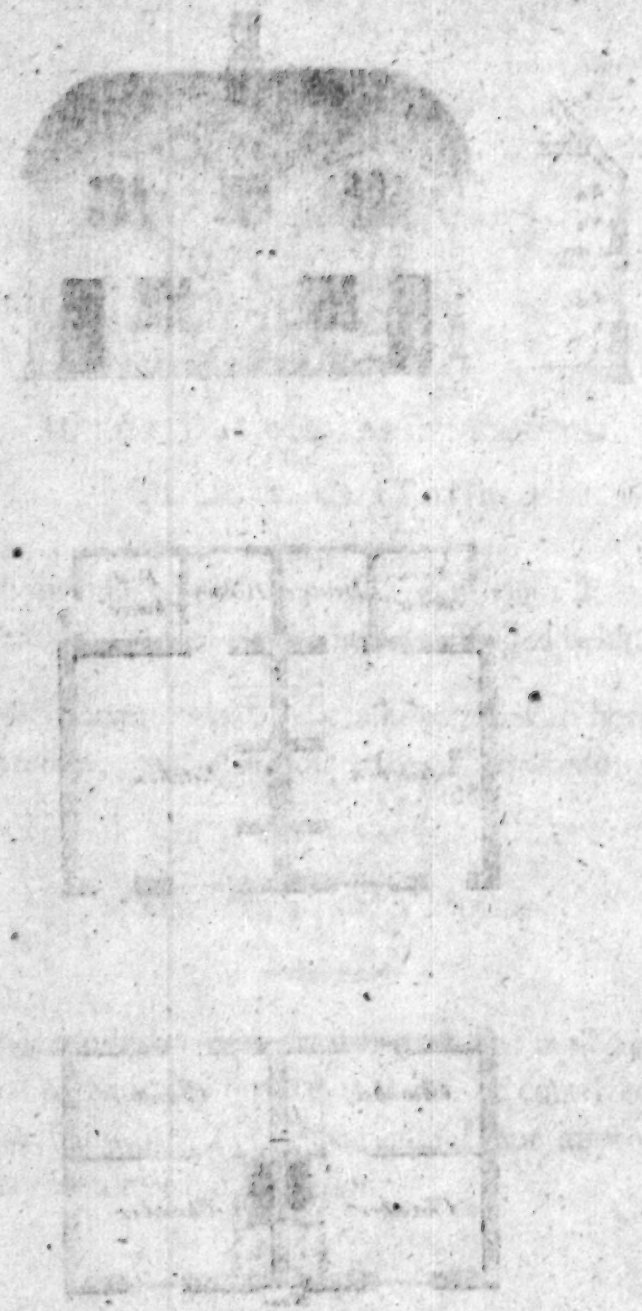




PLATE IV.

PLAN

OF

AN USEFUL AS WELL AS ORNAMENTAL

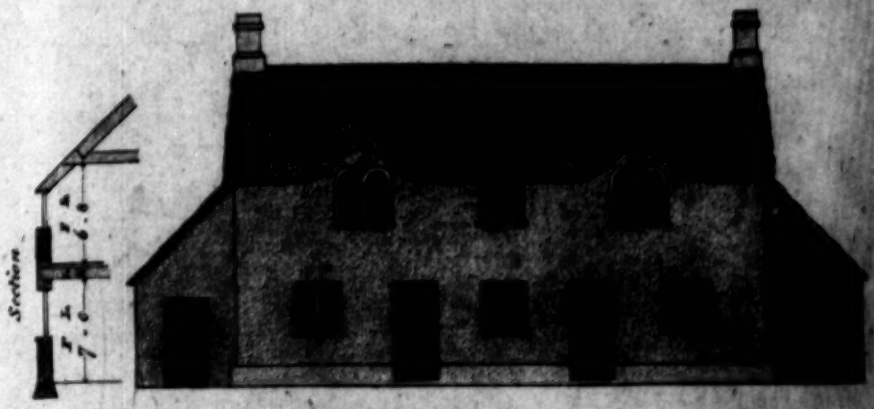
DOUBLE COTTAGE,

With two rooms on a floor, and ſkillings for fuel at the ends.

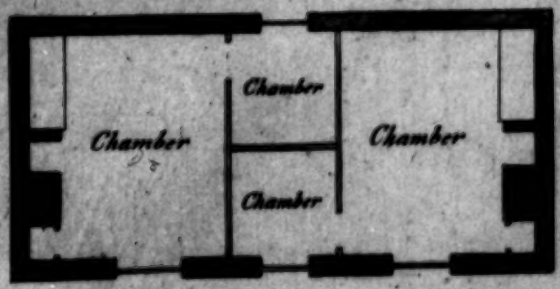
Or this cottage may be executed with plain ſquare chamber-windows and horizontal eaves.

ESTIMATE, *ONE HUNDRED POUNDS.*

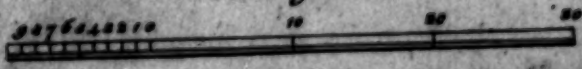
N°4. Double Cottage with Skillings at the Ends.







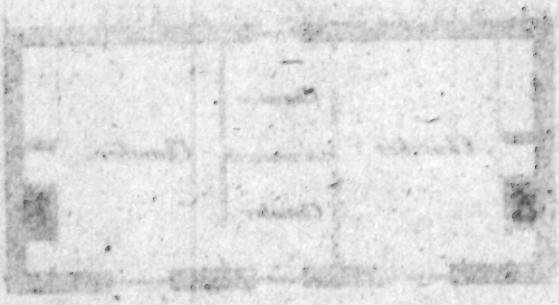
Scale of Feet.



Hillier, Bath. Sculp.

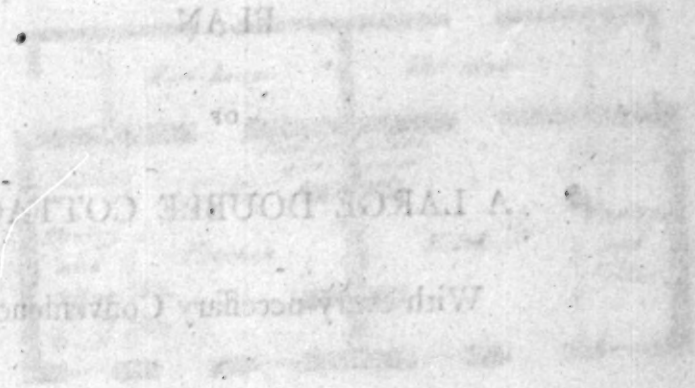






B L





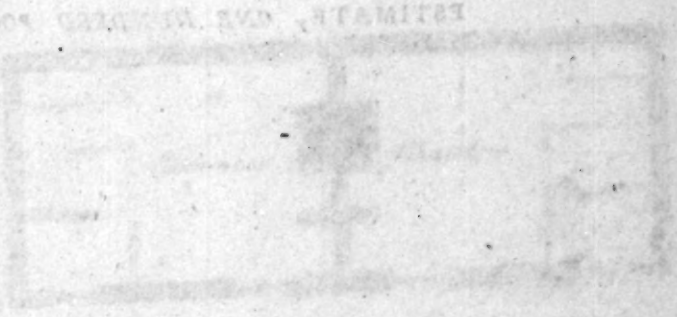


PLATE V.

PLAN

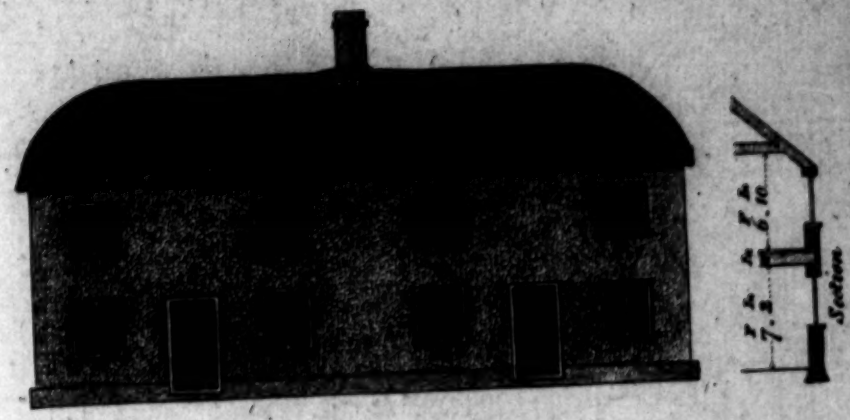
OF

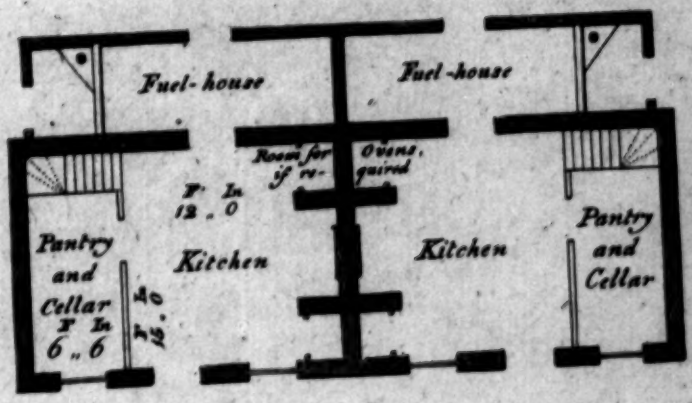
A LARGE DOUBLE COTTAGE,

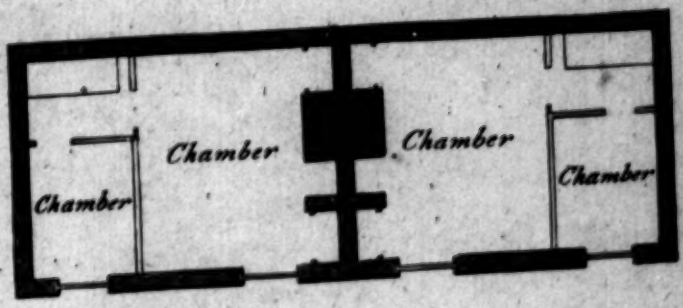
With every neceſſary Convenience.

ESTIMATE, *ONE HUNDRED POUNDS.*

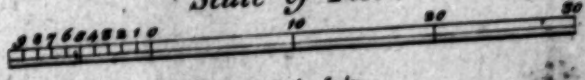
N°5. Large Double Cottage with Skillings behind.



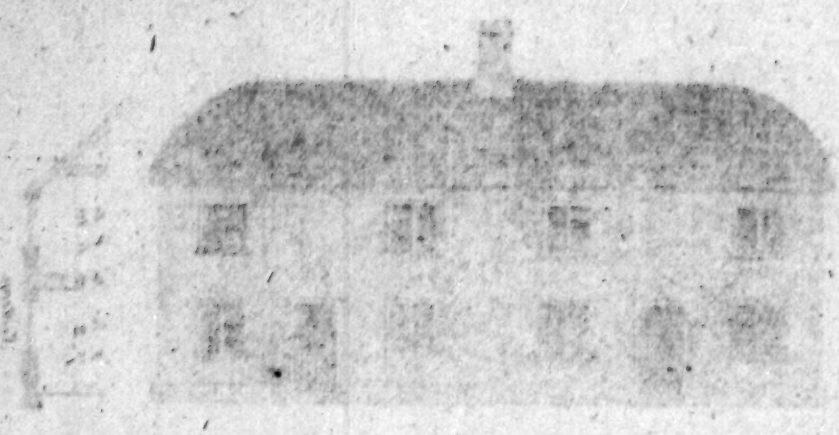




Scale of Feet.



Ribon. Bath. Sculp.







B L

PLATE VI.

PLAN

OF

AN ORNAMENTAL COTTAGE,

Of three rooms below and two above, with a Building for fuel.

PLATE VI.

PLAN

OF

AN ORNAMENTAL COTTAGE,

Of three rooms below and two above, with a ſkilling for fuel.

ESTIMATE, *FIFTY POUNDS.*

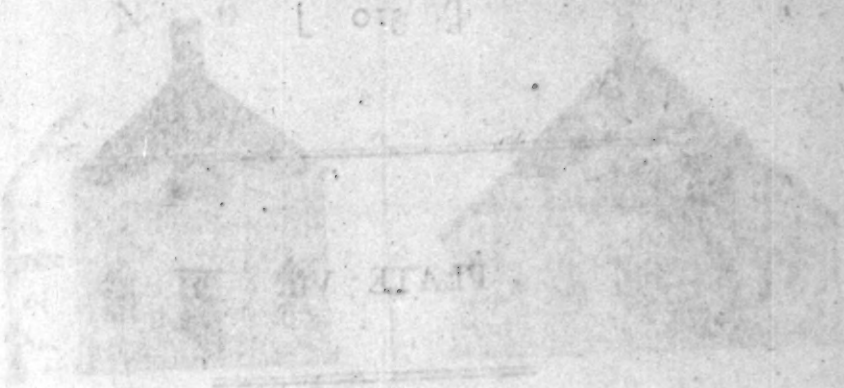


PLATE VII.

PLAN

OF

AN ORNAMENTAL COTTAGE

FOR

A PARK OR PLEASURE GROUND,

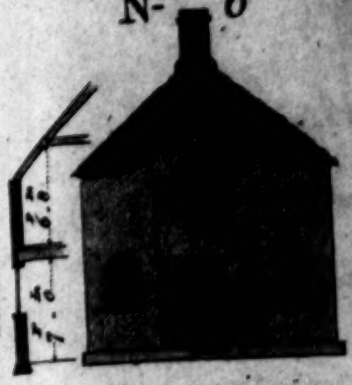
With every neceſſary Convenience.

ESTIMATE, *SEVENTY POUNDS*,

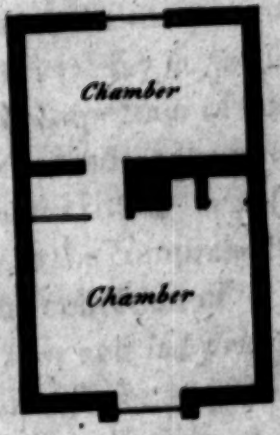
On account of finiſhing one Room for Tea-drinking, &c. occaſionally.

Ornamental Cottages.

N° 6

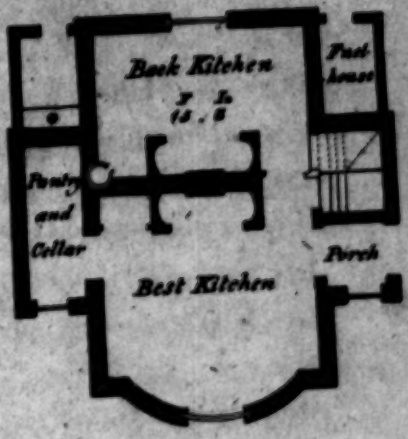


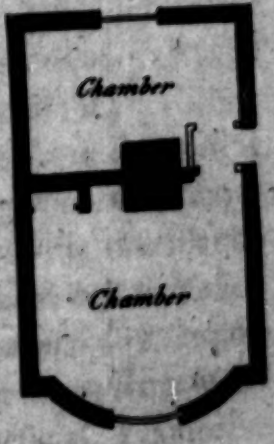




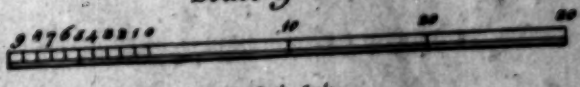
N° 7



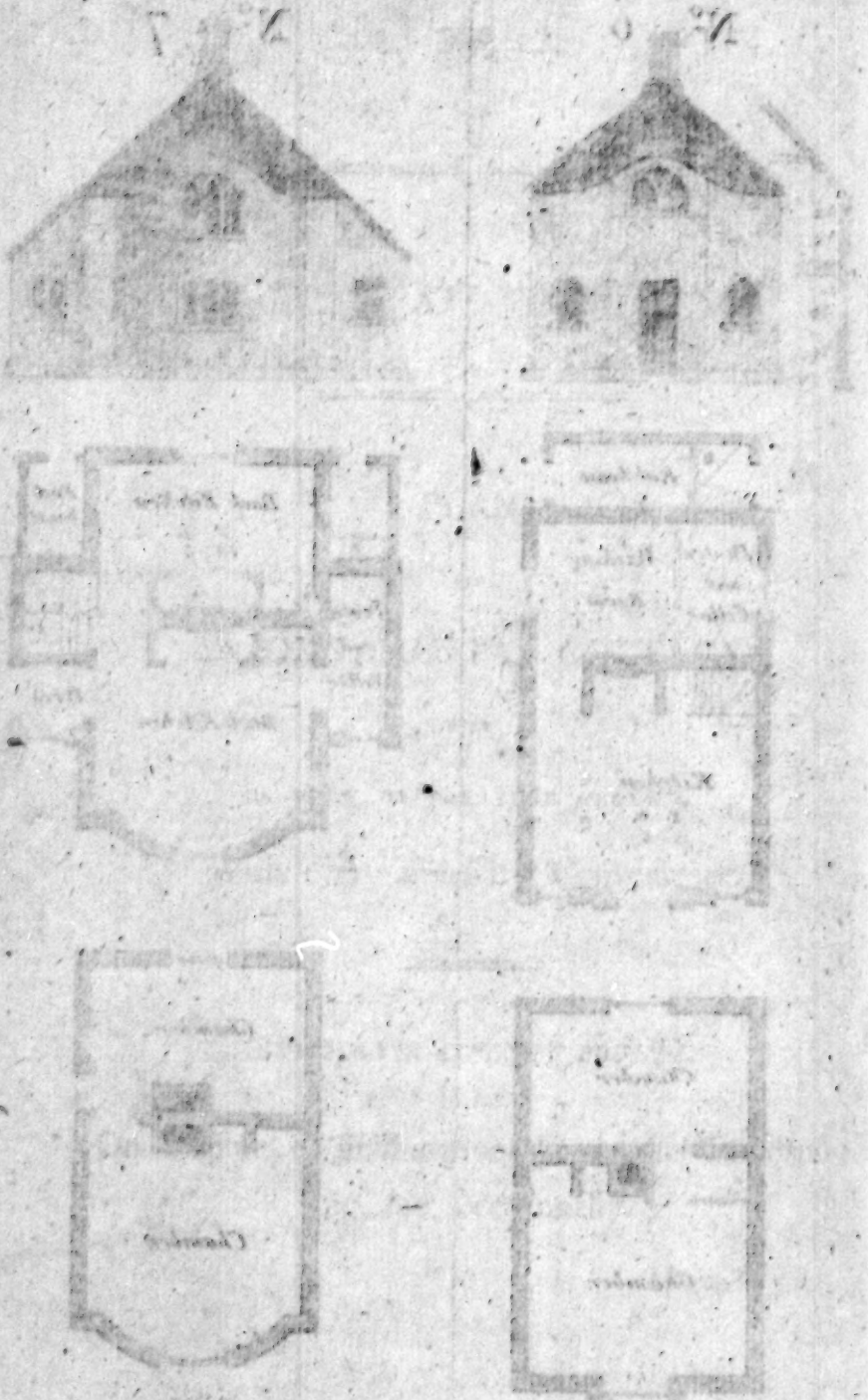




Scale of Feet.



Millard Bath. Sculp.



Article XV.

A Plan for the General Prevention of Poverty.

[In a letter addreſſed to George Rose, eſq.]

Nullum Numen habes ſi ſit prudentia; ſed te
Nos facimus Fortuna! Deam.———

SIR,

OBSERVING by the publick prints that, excluſive of your official duties, you were actively engaged in parliament on various important ſubjects, I did not preſume to acknowledge the receipt of your letter, &c. until now that the ſeſſion is cloſed.

I have peruſed the bill you did me the honour to ſend me (for the ſecurity of friendly ſocieties) with much pleaſure; the reſpective clauſes appear to me highly judicious; the act, *ſo far as it goes*, cannot fail to produce very beneficial effects, and, in my opinion, intitles you to the warmeſt thanks of your country: I ſay *ſo far as it goes*, becauſe it is evident, on the inſpection of our reſpective plans, that whilſt *yours* extends only to the foſtering care of ſocieties already exiſting, *mine* (as far as reſpects this iſland) goes to the comprehenſion of *the whole human ſpecies*. If the collection of a *ſmall* but *voluntary* tax, upon the *ſober* and *induſtrious* citizen, for his own uſe when in diſtreſs, be in *ſome degree* beneficial, I conceive that the collection of a ſtill *ſmaller*, though *compul-*

ſory

ſory tax upon all ranks of men, the *idle*, the *improvident*, and the *irreſolute*, as well as the induſtrious citizen, for the ſame purpoſe, would be a meaſure *as much more* beneficial as it is *more extenſive*; for in caſes where we cannot reaſonably hope to reform, we ſhould endeavour to *counteract*; and it is my firm perſuaſion, (although I wave the queſtion whether *this* be the proper moment for the attempt) that if any thing great, if any thing manly, if any thing important, is to be effected with regard to our poor laws, *ſome degree of compulſion is abſolutely neceſſary*; nor can I ſee the *ſmalleſt injuſtice*, in a meaſure which I will venture to ſay would *bear hard* upon *no one*, and be for the *advantage* of all. In the preſent critical and embarraſſed ſtate of this country, no one, who is not converſant with the *trading* and *middle ranks* of life, can form an adequate idea of the *difficulties* they at preſent experience; the taxes bear heavier on them than they can well endure, (in other words, they have not been able to increaſe their profits in *proportion* to the increaſe of taxes) and it is my ſerious opinion, that, if hard preſſed by their creditors, *nine-tenths* of them would be found to be in a ſtate of *inſolvency*.

From a *thorough revolution* in the poor laws, the moſt *powerful* and the moſt *permanent* aſſiſtance may be looked for, with *certainty*; and although the attention of the miniſter may have been taken up (as no doubt it has been) by matters of more *immediately*

ately preſſing neceſſity, yet, I am bold to ſay, that a ſubject of *more* general importance cannot engage the attention of man.

I ſhall now, ſir, proceed to give you a general outline of the eaſy manner in which I propoſe to carry this ſimple, though comprehenſive idea, into effect; I flatter myſelf you will immediately perceive, that the ſyſtem is *in itſelf* a *whole*; that in *principle* it *is compleat*; and if the documents in my poſſeſſion ſhould not (as I truſt they will) enable me *at once* to meet *every poſſible* caſe of diſtreſs, yet a little experience could not fail to ſuggeſt a remedy for *every defect*.

CLAUSE I.

That a proper officer be appointed for ſuch an extent of diſtrict, as he may be ſuppoſed conveniently to ſuperintend, to take a liſt of the names and places of abode of all males above the age of eighteen, and of all females above the age of ſeventeen years, in the ſame manner as the liſt is made out for the militia.

II. That every ſuch male pay two-pence per week, and every ſuch female three farthings or one-penny per week, into the hands of the above officer, for the purpoſes hereafter to be ſpecified.

III. The above officer ſhall be empowered to furniſh employment for all ſuch as are willing to work, and who cannot find it for themſelves. Whether this officer ſhould be choſen annually in rotation, after the manner of an overſeer, or whether he ſhould be a permanent officer upon an adequate ſalary, will be a matter of future conſideration; but if the

the latter, he ſhould be paid by the community, and not out of the fund.

IV. All the poor being thus ſure of employment, the maſter or miſtreſs for whom they work ſhould be juſtified in retaining theſe ſums reſpectively out of their wages; and whether they do ſo or not, they ſhould (in default of the individual) be anſwerable to the officer for its payment; all maſters and miſtreſſes of families ſhould in like manner be anſwerable for their ſervants, and all keepers of lodging-houſes, &c. for their inmates.

V. Theſe ſums ſhould be carried weekly to the general treaſurer of the *diviſion*, who ſhould give ſufficient ſecurity for the ſame.

VI. Out of this fund, every male who is really incapable of labour ſhould (*by virtue of a certificate from the above officer*) have a *right to demand* from the treaſurer five ſhillings per week for the firſt ſix months, ſhould his illneſs laſt ſo long, and four ſhillings per week after that period, until he again become capable of labour.

Every female ſhould have a *right to demand* two ſhillings and ſixpence per week, for the firſt ſix months, and afterwards two ſhillings per week, until ſhe be again able to work: ſhe ſhould alſo be intitled to four weeks full pay, at every lying-in. Every male above the age of ſixty-five years, whether capable of labour or not, ſhould be intitled to four ſhillings per week during life. Every female, after the ſame age, two ſhillings.

VII. Any perſon having three children under nine years of age, ſhould be intitled to one ſhilling and ſixpence per week, until the eldeſt ſhould have attained the age of nine years, and if he has more than three under that age, he ſhould be intitled to one ſhilling and ſixpence per week

for

for each above that number; and if any one or more of his children ſhould happen to be idiotic, inſane, or otherwiſe ſo far diſabled, either in body or mind, as to be utterly incapable of labour, each of them ſhould ſtill be conſidered as under the age of nine years, and paid for accordingly.

If a mother ſhould be left a widow with three children, under nine years of age, ſhe ſhould be intitled to receive five ſhillings: if with two children, three ſhillings; and if with one child, one ſhilling and ſixpence per week; if with more than three under that age, one ſhilling per week for each above that number, it being admitted that all her time is taken up by three, and allowance made for it, but that ſhe is capable of looking after and taking care of a greater number. The wives of men ſerving in the militia, and in the army or navy, ſhould, during the abſence of their huſbands, be conſidered and provided for in all reſpects as widows.

If a child ſhould be left an orphan under nine years of age, two ſhillings per week ſhould be allowed from the fund for its maintenance; if more than one of the ſame family, one ſhilling and ſixpence per week for each above that number. As there is probably no leſs friendſhip amongſt the lower, than amongſt the higher orders of ſociety, it would generally happen that ſome friend or relation of the deceaſed, would gladly take charge of the children, provided they could do ſo without eſſential loſs to themſelves. This regulation would effectually prevent that loſs; and to compenſate in ſome degree for the want of parental affection, ſixpence per week more is allowed for the maintenance of an orphan, or a family of orphans, than for a child or a family of children, who ſtill retain their mother. If, however, any beings ſhould be ſo *uncommonly unfortunate* as not to be thus *adopted*, the officer above-mentioned ſhould be obliged to provide a receptacle for them, which he will always be able to do for the ſum or ſums above-mentioned.

VIII. All children above nine years of age, if in health, ſhould, if they have no parents, or their parents are not able to provide for them, be put out after the manner of pariſh apprentices.

IX. All perſons neglecting or refuſing to pay their contribution, ſhould be committed to hard labour in the houſe of correction, for the ſpace of —— ——.

X. If the fund ſhould at any time fall ſhort of the neceſſary demands upon it, the deficiency ſhould be made up by a pariſh rate, collected in the ſame manner as at preſent; but without any ſenſe of obligation on the part of the multitude, (for there would be *no poor*) who ſhould in all caſes receive their relief *in the nature of a demand.*

XI. If the fund (as moſt probably would happen) ſhould increaſe beyond the neceſſary demands upon it, the ſurplus ſhould on no account be diverted to any other purpoſe than the benefit of the ſubſcribers; but when the price of grain exceeded that which brings it eaſily within the reach of the multitude, (ſuppoſe 6s. or 6s. 6d. the Wincheſter buſhel) every perſon who had three children, or more, under nine years of age, ſhould have a right to demand ſuch a ſum as, in proportion to the number of his family, would reduce the various neceſſary articles of life (taking wheat as the ſtandard) to a moderate price; and indeed I think in all caſes when the price of grain exceeds that proportion at which the *induſtrious labourer* can afford to come to market, *ſound policy*, as well as *common humanity*, requires that all large families ſhould be intitled to receive ſuch a ſum as above ſpecified, although it ſhould be neceſſary to collect a rate for the purpoſe.

I need not, perhaps, add that every officer intruſted with money ſhould give ample ſecurity for his integrity, and the faithful diſcharge of his duty; that due checks ſhould be

eſtabliſhed

eſtabliſhed to prevent embezzlement, and that all accounts ſhould be made up and balanced ſo frequently as to prevent the probability of miſtakes.

And ſtill more effectually to ſecure the compleat execution of the plan, it would perhaps be neceſſary to appoint a general inſpector of the funds, who, with the aſſiſtance of a few ſubordinate officers, would probably be able to ſuperintend the whole kingdom.

Such, ſir, diveſted of all *technical phraſeology*, are the leading features of a plan, which I wiſhed Mr. Pitt to have the glory of carrying into effect ten years ago; the various minute particulars muſt be reſerved to a future opportunity.

I am convinced the ſcheme is perfectly and *eaſily* practicable; I maintain that it would ſave at leaſt TWO MILLIONS per annum to the landed intereſt; that it would moſt eſſentially benefit the poor; and I do not heſitate to deliver it as my decided opinion, that by it poverty and the poor laws would ſoon be unheard of in our land, ſo that nothing but *abſolute famine* could, under ſuch a regulation (*neceſſarily*) render any individual deſtitute of the *comforts* of life.

And now, ſir, having, without any reſerve, exhibited to you the analyſis of my ſcheme, allow me to add, that whatever be its fate, whether the author of it be honoured by attention or conſigned to neglect; ſtill, amidſt the various diſaſters and diſappointments incident to human life, (and of theſe I have had my ſhare) the conſciouſneſs of my having diſcovered

covered a practicable remedy for the neceſſities of my fellow-creatures, will, I truſt, continue to prove (as it has already proved) my chief conſolation and ſupport, and that to the laſt hour of my life.

Sincerely wiſhing you ſucceſs in this, and in every other patriotic undertaking,

I am, Sir,

Your much obliged, and obedient ſervant,

R. PEW.

Shafteſbury, June 28, 1793.

P. S. The above ſuggeſtions paved the way for ſome obſervations on the national debt, which probably are worthy the conſideration of government.

Article XVI.

On Fatting with Potatoes, and on the Advantages of Drilling.

[By the Rev. H. J. Close.]

SIR,

PERMIT me firſt to apologize for my apparent inattention to your queries of the 16th of June, and to aſſure you, my not receiving your letter (owing to an improper direction) was the ſole cauſe of the delay.

Your correſpondent from Ireland wiſhes me to be as full and explicit as poſſible, on the ſubject of feeding cattle with potatoes; it is not in my power materially to elucidate the ſubject. I continue to practiſe the ſame mode of culture as my former letter deſcribed, and to uſe them in large quantities, having tied up and fatted 35 bullocks in one year, with thoſe uſeful roots. Your correſpondent aſks how long a beaſt will be fattening on them; to this no poſitive anſwer can be given, ſo much depends on the condition of the beaſt when he is put up. But the reſult of all my experiments tends to prove, that bullocks will fat ſooner on potatoes, than on either cabbages or turnips:—190 ſheep, out of 200, I fed upon them in one year, fatted beyond my expectation; ten never, I believe,

were

were induced to touch them, but were ſupported upon a ſmall quantity of hay during the winter months; I was not able to aſſign any cauſe for the averſion thoſe ten took to roots, on which the other 190 fed greedily and throve ſurpriſingly.

You remind me of my having been formerly a correſpondent of your reſpectable ſociety; believe me, I ſhall be always ready to communicate any uſeful intelligence to the public, and ſhall, at your requeſt, proceed to give my opinion on a ſubject of the utmoſt conſequence to the community.

It has been long conteſted by practical farmers, whether the drill or the broadcaſt huſbandry is the moſt advantageous. Thanks to the ingenious Mr. Cooke for the invention of an inſtrument, which has given a deciſive and certain ſuperiority to the drill ſyſtem. The above concluſion is not drawn from any plauſible theory, but from actual experiments, made on various ſoils, and in various ſituations; I have proved its utility in Surry and in Suffolk, upon ſands, ſandy and clayey loams, or gravels and ſtiff clays; the ſuperiority in favour of the drill and horſe-hoeing ſyſtem (as recommended by Mr. Cooke) above the common broadcaſts amounts as near as poſſible, on the average, to one year's rent and a half. I ſhall not trouble you with each particular experiment, but aſſure you they were accurate, and tried on lands from the yearly rent of 3s. to 30s. per acre. Two hundred pounds

is

is the annual ſaving in my ſingle occupation in the article of ſeed-corn only. For a moment reflect what a national advantage would accrue, by the general uſe of ſuch an inſtrument!

Wiſhing you, and the ſociety you repreſent, all poſſible ſucceſs in your various attempts for the benefit of mankind,

I am, Sir,

Your friend and ſervant,

Hitcham-Hadleigh, Suffolk, H. J. CLOSE.
Oct. 12, 1789.

N. B. This ſhort, but intereſting letter ſhould have appeared in a former volume; but from its being taken for peruſal by a member of the ſociety, it was thrown out of its proper depoſit, miſlaid, and not till very lately by accident recovered.

Article XVIII.

Value of Land, with the Riſe and Fall of the different Publick Funds.

[By Sir Thomas Beevor, bart.]

SIR, *Hetbel, April* 2, 1794.

I HAVE tranſcribed a paper, which has been lately ſent to me by a friend, ſtating and ſhewing the value which land has borne in this country,

and in what degrees it has riſen and fallen with the riſe and fall of the different publick funds: of the accuracy of which, having no doubt, I think, it may ſerve the purpoſe of more than mere amuſement.

The heavy drill-roller, of which I ſent a model to the ſociety ſome time ſince, is coming faſt into a more general uſe, and ſerves admirably well for another purpoſe than it was originally intended for; it is found to reduce the clods on ſtrong clayey lands, when ſuddenly hardened, and baked by a ſharp drought in the ſpring, beyond the ſpiky, or the heavieſt common roller that can be uſed.

I am, ſir, with much real regard and eſteem,

Your much obliged

and obedient ſervant,

THOMAS BEEVOR.

N. B. Since the above was written, I find the contents of the following table was taken from an account publiſhed in one of the common annual pocket-books; nevertheleſs, may it not be of ſome utility in a publication of the nature of that you are engaged in?

A Table

A Table of Equation of Stock, with the Correſpondent Value of Land.

Bank Conſol. 3 per Cent.	S. Sea Stock 3½	Bank Conſol. 4	Bank Conſol. 5	India Stock 8	Bank Stock 7	Yearly Purchaſe of LANDS.	Annual Intereſt per Cent.
3 per Cents. at 60 are equal	to 3½ at 70	80	100	160	140	20	£. s. d. 5 0 0
61½	71¾	82	102½	164	143½	20½	4 17 6
63	73½	84	105	168	147	21	4 15 2
64½	75¼	86	107½	172	150½	21½	4 13 0
66	77	88	110	176	154	22	4 10 10
67	78¾	90	112½	180	157½	22½	4 8 10
69	80½	92	115	184	161	23	4 6 11
70½	82¼	94	117½	188	164½	23½	4 5 1
72	84	96	120	192	168	24	4 3 4
73½	85¾	98	122½	196	171½	24½	4 1 7
75	87½	100	125	200	175	25	4 0 0
76½	89¼	102	127½	204	178½	25½	3 18 5
78	91	104	130	208	182	26	3 16 11
79½	92¾	106	132½	212	185½	26½	3 15 5
81	94½	108	135	216	189	27	3 14 0
82½	96¼	110	137½	220	192½	27½	3 12 8
84	98	112	140	224	196	28	3 11 4
85½	99¾	114	142½	228	199½	28½	3 10 2
87	101½	116	145	232	203	29	3 9 0
88½	103¼	118	147½	236	206½	29½	3 7 9
90	105	120	150	240	210	30	3 6 8

Article XIX.

The Horſe and Sweet Cheſnut, and the Black Willow, recommended for Planting.

[In a Letter to the Secretary, by Benjamin Pugh, eſq; of Midford-Caſtle.]

MR. SECRETARY,

I WAS ſo much pleaſed and entertained at our laſt meeting, with the two judicious and ſenſible letters that were then read, reſpecting timber in general, and the care of woods, that I beg leave to add my ſmall mite, hoping the ſociety may think it worthy of their notice.

I am ſurpriſed theſe gentlemen, who ſeem to be ſo well verſed in the comparative value of timber trees, take little, if any, notice of the *horſe cheſnut*, and *ſweet cheſnut* which trees make exceeding good timber, are certain and quick growers in every kind of ſoil, and the beauty of the flowers of the former quite equal to the moſt beautiful ſhrub in the garden; and as for the duration of the timber, eſpecially the ſweet cheſnut in the dry, it is equal to the oak; I have ſeen a large barn that was built of this timber, which had ſtood ſome hundred years, and all perfectly ſound.

In thickening, or new planting coppice-woods, I ſhould prefer the horſe cheſnut with the black withey (as it is called in this country) to any other kinds

kinds of wood; from the quick growth of the latter, and from the little experience I have had of it in my own wood, I think I may venture to ſay it may be cut down *every ſeven years* for faggots, at which time they will make very good ones:—Specimens of the black withey I have brought to the rooms; a one-year's ſhoot ten feet, and a four-year's growth near ſix inches round. Suppoſe in planting, the ſeed of the cheſnut, and the cutting of the withey, are planted alternately, allowing ſix feet every way, which I think would be giving them ſufficient ſpace. The cuttings of the withey to be about ſix inches long, to be ſet four inches in the ground, and two out; and the cheſnut in the third year, ſuppoſe the beginning of the month of March, to be cut down to within two inches of the ground; it will throw out four, five, or ſix ſhoots, or offsets, as the ſpring advances, and increaſe after every felling.

Now I am ſpeaking of planting, let me recommend every landlord to oblige the tenant (by a clauſe in his leaſe) to aſſign a ſpot of ground (ſuppoſe half an acre) to be well fenced and ditched, and having a ſouth or a ſouth-eaſt aſpect if poſſible, to be dug up and well cleaned, and lie to mellow; and when duly prepared, to be ſowed in ſtrait lines with oak acorns, horſe-cheſnuts, aſh ſeeds, elm and poplar, the rows to be ſix feet diſtant from each other, at leaſt, that there may be room for digging, hoeing, &c. to be conſtantly kept clean and in order: (the

ſeeds

ſeeds put in two feet apart from each other) then the tenant ſhould be obliged to plant one of theſe trees, in the place of every pollard, decayed or lopped tree, the tenant takes down; and when a hedge ſhall be made new, or an old hedge cut down and remade, let ſo many of the young trees out of the plantation as the landlord ſhall appoint, be taken up and planted at proper diſtances in the hedge, and in time theſe trees thus planted, will, proclaim their benefit to the landlord and to the public.

Your's, &c. B. PUGH.

N. B. The black withey makes the beſt hedge ſtakes that can be uſed, becauſe they are ſtrait and handy, and will all grow, whereas all other ſtakes, in three or four years, rot and become uſeleſs, *and a temptation to hedge-breakers.*

Article XX.

On the Reclaimation of a Snipe Bog.

[By Thomas South, eſq; in a Letter to the Secretary.]

DEAR SIR, *Boſſington, Aug.* 9, 1794.

IN compliance with your requeſt, ſignified in your favour of the 6th, accept for the ſeventh vol. of the ſociety's papers, the particulars of a thorough reclaimation,

reclaimation, or the converſion of a ſnipe bog, not worth 7s. an acre, into a meadow, promiſing to be worth 30s. per acre at leaſt. Happy is it, when nuiſances can be made profitable! more ſo when an acre of paſture, loſt as ſuch to the publick, furniſhes materials to improve the adjacent land, to ſix times the value of the portion that was annihilated!

In forming the Andover canal which croſſes an angle of this eſtate, about an acre of good grazing ground, valued at 30s. a year, was taken in: the channel being deep, the ſoil thrown out proved various; loam, malm, gravel, and rubbiſh; the next ground within a few yards of the ſpot, was a moraſs covered with a coarſe ruſhy turf, ſo tough by the interweaving of its roots, that it yielded to the tread of cattle without breaking under preſſure; and conſequently their weight, which ſunk the various tracks below the general level, raiſed the interſtice between them into the hillocks. During the whole winter, and the greateſt part of the ſummer months, the ſummits only of theſe hillocks remained dry; bearing a coarſe ordinary herbage, to which the cattle ſeldom reſorted, till drought had rendered the neighbouring paſtures bare. This land lay ſo low between two rivers, that it was deemed almoſt impracticable to make it healthy. Tempted, however, by the quantity of ſoil at hand, the experiment was tried, and the plan (which was as follows) ſucceeded beyond expectation.

The

The hillocks, conſiſting of a light parenchymous [ſpongy] ſubſtance, were in the firſt place cut down, thrown together in lines eight or ten feet broad; the water was drained off in the next, and by an open channel conveyed into the river near 200 yards below. The whole ground was then laid out in beds, or oblong compartments about 20 feet wide, having head-lands with furrows to the Eaſt and South-weſt, to receive the ſoakage of the rivers, and a main drain at the bottom, to convey the water to the diſtance above-mentioned. This done, a mixture of the loam, malm, and gravel, was laid about 16 inches thick over the inverted hillocks, along the centre of the beds, ſloping off each way to their edges. Ditches two feet wide, and a ſpit and a half deep, were then ſunk between bed and bed, communicating with the drain below. The peaty ſubſtance thrown out of theſe ditches was ſpread over the centre of the beds, ſo as to form a compoſt with the loam, gravel, &c. and the ditches themſelves were afterwards filled with ſheer gravel ſo high as to remain like furrows to the beds, which, by the addition they had received, were now become ridges of conſiderable elevation. Having proceeded in this manner through the piece, and given it three ploughings to mix and meliorate the ſoil, it was ſowed, in 1793, with white oats, cow-graſs, and Dutch clover; of the former, only three buſhels per acre were allowed, the graſs being my chief

object

object. The corn, though ſowed ſo thin, produced five quarters to the acre, and the graſs is ſo ſtrong and well ſet, that there is no ſuch plant to be ſeen in the neighbourhood. Perceiving that where the hillocks had been cut off, or the turf by any means removed, the ground would not bear the weight of horſes, which ſunk up to their hocks in the peat, determined me to render the furrows hard and permanent; which is now compleated to my ſati faction, as both ſmall and great cattle depaſtured there without miring during the heavy autumn rains of laſt year, and the water ſpeedily ran off above ground, leaving no ſtanding pools in any part whatever.

This improvement commenced in 1791, was much retarded by the inceſſant rains of 1792, which cauſing an increaſed expence by broken days' work, delays, miring horſes, &c. raiſed the coſt upon the whole to twelve pounds per acre, viz. 72l. for ſix acres; yet it will anſwer well, for the produce of the crop of oats being 36l. clear, leaves 36l. only for outſtanding expences. And the improvement of 23s. per acre or 6l. 18s. a year, will pay ample intereſt for ſuch ſum, independent of the credit and pleaſure of ſetting a good example, rendering things tidy and comfortable round me, beſides promoting the publick weal, by increaſe of paſturage and provender for cattle.

THOMAS SOUTH.

P. S. I have the pleaſure to inform you, that the above valuation of 30s. per acre lies within compaſs, for *Mr. Young himſelf* ſaw the land a few weeks ago, and eſtimated it at 40s.

Article XXI.

An improved Pedometer deſcribed.

[With a Plate.]

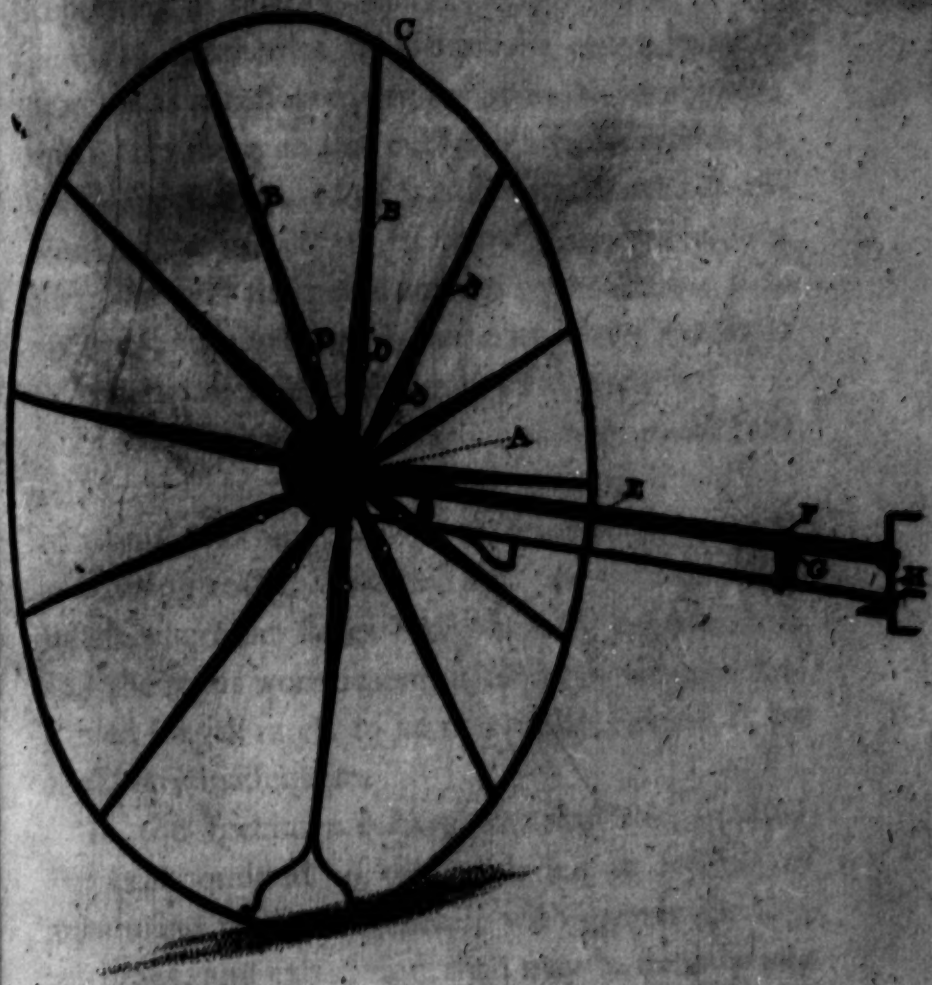
By Mr. L. Tugwell, of Beverſtone.

SIR,

YOU will obſerve under the article Perambulator, in the Cyclopædia of Chambers, that its proper application is where for meaſuring roads and large diſtances, great expedition, and not much accuracy, is required!—This want of accuracy will be obvious enough to every inſpector to ariſe from the too ſmall dimenſions of its meaſuring wheel; it too readily thereby, in its application, adapting itſelf to the caſual inequalities of the ſurface; and hence the deſideratum of ſome contrivance for admitting a larger wheel for obviating the defect. This, ſome years ſince, was attempted by Mr. Edgworth, whoſe machine for the purpoſe ſeems the moſt ſimple that can be conceived; while, however, (ſimplicity being in mechanics a criterion of excellence, and probably from conſidering, in addition to the above-mentioned defect in the old one, its too great complexity) he ſeems to have gone into the oppoſite extreme, and, almoſt through the whole of his own, to have ſacrificed utility to an unneceſſary degree of brevity.

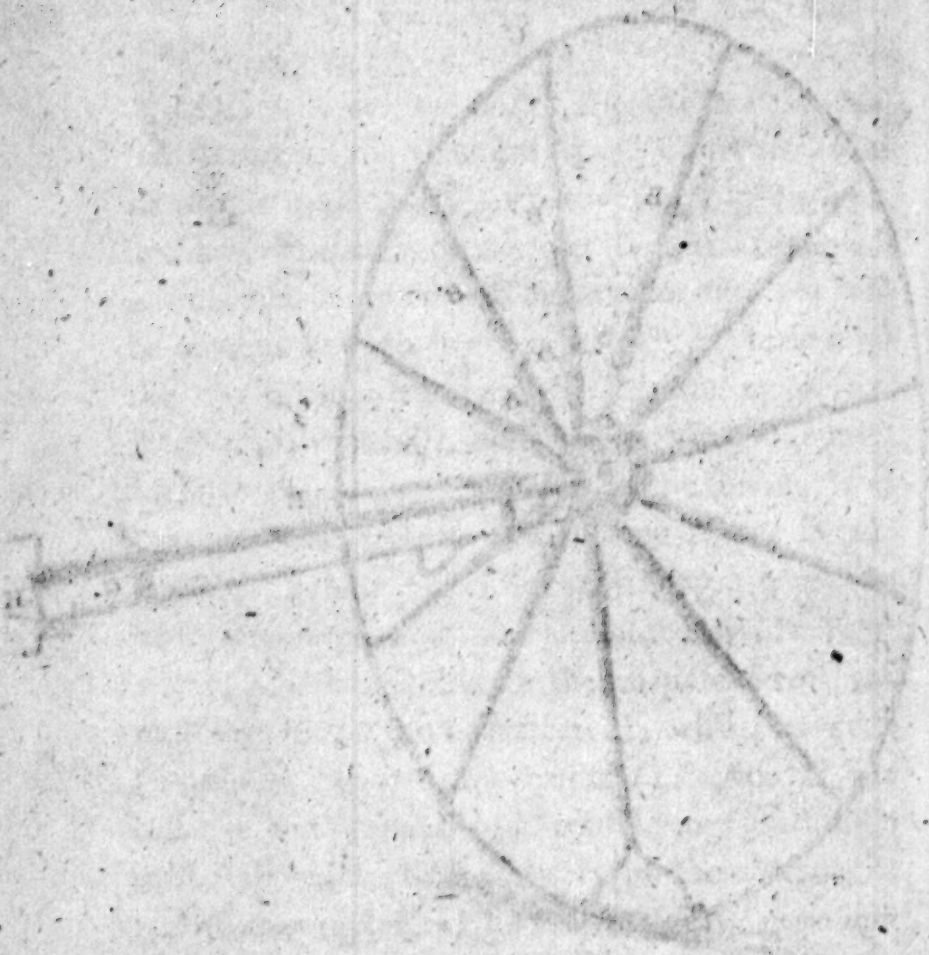
Mentioning theſe matters to you ſome time ſince, and that I had, from the obvious utility of a perfect machine

An Improved Pedometer,



Presented to the Bath & West of England Society,

by Mr. Lewin Tugwell, of Bevenstone.



machine of the kind, contrived a very uſeful one, on Mr. Edgworth's principle; you deſired me again to try if I could not render it ſtill more perfect, and, if ſucceſsful, to ſend a ſpecimen to the Repoſitory at Hetling-Houſe.

As in mechanics, the previous aſcertaining a defect is as neceſſary to improvement as, in phyſick, the determining on the exiſtence of a diſeaſe to its cure, I have ventured to ſubmit the annexed ſpecimen for the inſpection of the Committee, hoping ſome one will ſtill point out the improvement I do not ſee, and, purſuing the ſame to effect, render it ſtill more deſerving the regard of community.

In conformity to the ſimplicity above-mentioned of Mr. Edgworth's Pedometer, he found it neceſſary to attempt nothing more in its operations, than the meaſuring roads, diſtances, &c. and even for this, unleſs where the ſtones had previouſly been broken, and the roads worn ſmooth (inſtances for any continued length rarely to be met with) I found it, on trial, very inadequate.

In the ſpecimen I have now ſent you, nothing has been omitted to the rendering it capable of meaſuring roads in general, with greater facility, accuracy, and expedition, than may be done by any other mode I have ſeen or heard of; while it alſo equally excels in the ſurveying or meaſuring of lands. By the common mode of meaſuring theſe by Gunter's, or any other chain, the progreſs (comparatively

paratively in reſpect of that made by the Pedometer) is uſually ſlow; and while it engroſſes the conſtant attention of two or more perſons in company, the reſult is ſometimes erroneous. A perſon uſing the Pedometer has not only, while at work, no need of an aſſiſtant; but while, of himſelf, he meaſures with greater accuracy and expedition than is done by the chain, if caſually an unemployed companion attend him, he is at liberty for the moſt part, while the work goes forward, to bear a part in converſation on any indifferent ſubject.

The idea of land-meaſuring by this mode aroſe from an impoſition, perhaps, but too frequently practiſed. A labourer's taſk-work to be meaſured, no one was at hand to carry the chain (the uſual term) but the labourer himſelf:—the land meaſured and money paid, he went to the ale-houſe, got drunk, and boaſted of having outwitted his maſter, in having ſhortened the chain, by gathering ſome of the links in his hand at its fore end.

Hoping this may be added to the collection of uſeful machinery, lately accumulated in your repoſitory, I take the liberty of thus deſcribing its advantages, and of hinting that if, promoted by the Board of Agriculture, an incloſure of our waſte and other lands ſhould become general, it may be found of uſe in ſuch undertakings.

I am, Sir, reſpectfully your's,

L. TUGWELL.

Beverſtone, May 2, 1794.

References to the Plate of the Pedometer.

A.—The ſtock of the Pedometer.

B, B, B, &c.—Twelve ſpokes, one end of each inſerted in the ſtock, and the other faſtened with a ſcrew to the outward ring, or periphery of the wheel.

C.—Periphery; an iron ring $16\frac{1}{2}$ feet, or one pole in circumference, adapted to Gunter's conciſe method of arithmetick, and divided into 25 equal parts, correſponding to the links of his chain for land-meaſuring, &c.

D, D, D, &c.—Twelve ſmall plates, denoting the ſeparate ſpokes, each including two links of the chain above-mentioned.

N. B. The twelfth ſpoke is divided at its foot for taking in the odd, or 25th link.

E.—An iron axis, being a ſcrew with 320 circumvolutions, ſeparately marked on an engraved index on one of its ſides. In its application, it is ſcrewed faſt into the ſtock of the wheel, and when at work, revolves with it.

F.—A ſtyle or alidade, being an expanding ſcrew-nut, embracing the axis, and ſcrewing along it, as the latter revolves with the wheel; and as each revolution of the wheel, when rolling on the ſurface, deſcribes an exact longitudinal pole, and conſequently four of them a chain; the ſtyle, hanging pendant, and moving to its proper figure, denotes the length of ground paſſed over, as divided into chains and poles, on the index of the axis E. and links on the periphery C.

G.—A ſmall adjuſting ſcrew, by turning of which the ſtyle may be inſtantaneouſly moved back to the beginning of the index, when, in land-meaſuring, the given line has been aſcertained in chains, links, &c.

H.—A croſs or ſquare, with ſights for determining, in land-meaſuring, the perpendiculars:—ſuſpended at its ends on the axis, and occaſionally to be detached therefrom, when uſed, with a touch only of the finger and thumb. It furthermore acts (by the lower end of the ſtyle F. embracing alſo its ſtandard) in preventing the ſaid ſtyle from being carried round by any poſſible accident with the axis, as it revolves; which, before it was uſed, had ſometimes taken place, and greatly embarraſſed the account:—and as the 320 diviſions, marked poles on the index of the axis, are calculated for the deſcribing an exact mile, the ſtyle F. having paſſed over them, will then ſcrew no further; but moving round with the axis, takes with it the ſtandard, and ſtriking it on the wriſt of the operator, prevents the poſſibility of his proceeding farther, till he has drawn his hand from between the ſaid ſtandard and the axis:—having, in road-meaſuring, received the neceſſary hint, he turns the ſcrew G, puts back the ſtyle F to the bottom of the index, and goes on as before.——N. B. The ſtandard of the croſs, divided into five lengths, occaſionally ſubſtitutes the ten-link rod uſed for meaſuring offsets, &c. and is alſo uſed for ſmall diſtances inacceſſible to the wheel.

Article XXII.

Obſervations on Turnip-Cabbage.

No. I.

[TO THE SECRETARY.]

SIR, *Twerton, Nov.* 9, 1792.

ABOUT four years ſince I ſent you a very brief account of the cabbage-turnip, or as it is ſometimes called the turnip-cabbage. Having promiſed you the reſult of ſuch further obſervations as I might make upon this plant, I now fulfil that promiſe, by communicating to you ſuch remarks as I have made upon it in a further acquaintance of four years. It is proper, however, that I ſhould firſt correct an error into which I had fallen myſelf, and probably may have led many others. I find upon enquiry, that this plant has been long, though not very generally, known in this country. It was introduced ſome years ago to the London ſociety, and premiums offered for its cultivation. The reſult of the experiments then made, was upon the whole very favourable to the plant; yet, like many other valuable diſcoveries, it has fallen into diſuſe. It is from a conviction, that it did not merit ſuch treatment, and that it may be cultivated as an autumn or ſpring feed for ſheep to very great advantage, (particularly the latter) that I trouble the ſociety with this letter.

Dr.

Dr. Cullen, author of the Materia Medica, has in that publication fallen into the ſame error with myſelf. At a late period, ſubſequent to my former communication reſpecting it, he ſpeaks of it as a new thing, not yet known in this country. His account of the plant is a very favourable, and, I think, a very juſt one. But his acquaintance with it had reached no further than as with a delicacy for his table.

In the year 1791, I planted out between 4 and 5000 of theſe plants into a field, on the top of a hill, on a thin, worn-out, ſtone-braſh ſoil. The ground was dragged down to a level; ſome furrows ſtruck at about three feet diſtance, and a little dung ſhook into the furrows, which were afterwards cloſed with a plough. The firſt dripping day the plants were put out, at about two feet diſtance in the rows. They took root very readily, and continued to thrive well, notwithſtanding the ſeaſon was very dry. Theſe plants bore the winter, which was rather a ſevere one, very well, though many turnips on the adjoining land were deſtroyed. In the ſpring they were for the moſt part given to the ſheep, which have always appeared to be very fond of them. Part of them were ſaved for ſeed, which ripened and were cut about the middle of July. The land upon which thoſe that were given to the ſheep grew, as well as the turnip land, was ſown to barley; but the former did not appear to be at all exhauſted,

more

more than the latter. I think the average weight of the bulbs was about 5lb.; many reached 8 or 9lb. and ſome few 14 or 15lb.

This year, I again planted out about 4000, in a ſtrong ſtiff loamy ſoil, and rather wet and low. Where the ground was drieſt, the plants have thriven well; but where it was wet, they have made little progreſs. Theſe were planted out on two-bout ridges, being nearly five feet diſtant row from row, and about two feet in the ranks. I expect that theſe plants will not ſtand the winter ſo well as thoſe on the hill did. They appear to me to affect a dry ſituation: an opinion which correſponds with the experiments made by the London Society. In the latter ſituation, they appear to produce more leaves in proportion to the ſize of the bulb, than in the former. I think the lower leaves might be cut off late in the fall, and given to young cattle with advantage; as they are otherwiſe caſt during the winter.

I cannot but think that they poſſeſs ſome advantages over the common turnip. They have a ſtrong power of reſiſting putrefaction, and of courſe endure the froſt and wet, but particularly the latter, better than moſt plants. They are much more nutritive than the common turnip; and being of a cloſer texture, and leſs watery, they contain more food in a given ſpace. By ſtanding up above the ground on a foot-ſtalk, they are more readily come

at, when the ground is covered with ſnow. If the ground be in good proof, and they are intended for ſpring feed, it will be time enough to plant them out the beginning, or even the middle of July: which will give the farmer a long ſummer to clean his ground. I imagine they may be reſerved almoſt as late in the ſpring as you pleaſe. I have found the bulbs nearly as firm and ſweet, after the ſeed has been cut, as before. Their leaves, not being bitter like thoſe of the turnip, are more readily eaten by cattle. Upon the whole, I cannot but think that they would prove, upon trial, a very valuable article of fodder to the farmer, and as ſuch, I venture to recommend them to the attention of the ſociety. I think it might be proper to offer a premium, to induce farmers to aſcertain the value of them by repeated experiments.

The mode of culture is ſo ſimilar to that of cabbage, that it is ſcarcely neceſſary to notice it; as, however, it may be expected that I ſhould do it, I will juſt mention a few particulars. The earlier the ſeed is ſown in the ſpring, and conſequently the earlier the plants are put out, the better, eſpecially in poor ground. In ſtrong land, and a favourable ſeaſon, a good crop may be procured by ſowing the firſt or ſecond week in May. If ſown ever ſo early, they never run to ſeed the firſt ſummer, unleſs here and there one which has run from its ſort. In good ground the rows may be from

there

three to five feet aſunder, and the plants not leſs than three feet in the rows. Great care muſt be taken not to plant them too deep; and when hoed, not to draw the mould too high in their ſtalks. Strict attention muſt be paid in ſelecting bulbs for ſeed, which ſhould always be the cleaneſt and handſomeſt: otherwiſe they are very apt to ſport, as it is termed, or run from their ſort. I have taken them up in the ſpring from the field, and planted them in my garden when they have been ſprouting, and the ſeed has ripened well; but I would prefer letting them remain where they were firſt planted. It may, therefore, be prudent to plant a ſmall piece for the purpoſe of ſeed, and to pull up any irregular or falſe ones. Of courſe none of the cabbage tribe ſhould ſeed near them. I think thoſe intended for ſeed might be planted cloſer together, without injury to the crop; by which it will allow for pulling up the bad ones with leſs loſs. If any perſon ſhould wiſh to cultivate them in his garden, he will find the method above recommended for the field anſwer his purpoſe. The bulbs will be fit for uſe by October, and may be uſed till they begin to ſprout in the ſpring, at which time the young ſhoots are very delicate eating. In preparing for the table, the rind, which is very tough and fibrous, muſt be entirely taken off, and the bulb cut into ſmall pieces, which muſt be treated as turnips: they will require to be boiled at leaſt

two, and ſometimes three hours, before they will be ſufficiently tender. I have always found them beſt when boiled with meat, eſpecially with ſalt beef. They give a moſt agreeable flavour to broth.

A friend of mine, who is going to Jamaica, has undertaken to carry ſome with him to ſea, for which purpoſe I am inclined to think them well calculated: the reſult of his experiment ſhall be communicated to you. I have ſent you a parcel of ſeed, about 12lb. which was ſaved with great care, and will be ſufficient to enable many perſons to make experiments; and I recommend it to ſuch perſons to prefer a dry elevated ſituation, even though the land be not ſo good. If any circumſtances ſhould occur, worthy of notice in my further cultivation of this plant, I ſhall be careful to communicate them to you,

And am, ſir,

Your very humble ſervant,

THOMAS BROUGHTON.

Article XXII.

Account of Experiment on Turnip-Cabbage for the Society's Premium in 1793.

[TO THE SECRETARY.]

SIR,

I AM making this year, a larger experiment than any I have before made, with a view to aſcertain the value of the turnip-cabbage, as a ſpring food for ſheep and cattle, and (as I mentioned before to you) as a candidate for the ſociety's premium on that head. As this experiment cannot yet be conſidered as complete, I ſhall reſerve myſelf for a minute account of it to a future time. In the mean while, as the proſpect of its ſucceſs is extremely flattering, I am induced to ſtate a few particulars againſt the next meeting, with the hope of encouraging many others, to make ſimilar experiments upon this plant in the enſuing year.

A piece of wheat ſtubbs, between two and three acres, lying in a ſmall common field, the ſoil a free-ſtone grit, worth about eight ſhillings per acre, was twice ploughed, cleaned, and dunged. It was then ridged up in two-bout ridges, part having their centers three feet diſtant from each other, and part only two feet. The plants were all ſet out on the middle of the ridges, and at the diſtance of three feet from each other in the rows; but at three

three different times—the firſt, ſeed ſown the middle of March—the ſecond, ſeed ſown the beginning of April—the third, the end of April. The ſeaſon was uncommonly dry; few opportunities offered of planting, or making good the numbers that failed from the drought. On a piece of ground adjoining, I purpoſed having ſome common turnips to compare with them; but in ſpite of all my care, and thrice ſowing, the crop was ſo thin, that the ground was afterwards ploughed up and ſown to wheat, to my very great diſappointment. As ſoon as the plants had got firm root, and had advanced a little in their growth, a furrow was turned with a plough from *each* ſide of *each* ridge, and the weeds on the remaining part of the ridge, not touched by the plough, were cut up with a hoe. In a fortnight or three weeks afterwards, theſe furrows were turned back again into their places. By which means the land was kept clean at a ſmall expence, and the growth of the plants greatly promoted.

On the ſecond of December I cauſed three ſquare lug, to be cut in three different parts of the piece, and found the weight to be as follows:

	lbs.
No. I. One ſquare lug, ridges ſomewhat more than three feet, plants three feet in the rows, ſeed ſown middle of March, weight	230
No. II. One ſquare lug, ridges barely three feet, plants three feet in rows, ſeed ſown beginning of April, weight - - - - -	260

No. III. One ſquare lug, ridges about two feet, plants three feet in rows, ſeed ſown end of April, weight - - - - - - - - lbs. 260

The inferiority of No. I. was not, I believe, owing to early ſowing, but more of that plantation failed than of the others, and no opportunity offering to replace them for nearly ſix weeks, the plants in the ſeed-bed were ſtinted in their growth by the drought, and never throve well afterwards; nearly a fourth of the bulbs in the firſt lug were of this deſcription. Had it been otherwiſe, I believe the firſt would have been the beſt. I compute the average weight at ſomewhat more than eighteen tons per acre.

It is remarkable that numbers II. and III. ſhould be exactly equal in weight, the rows in one caſe being three feet, in the other two feet aſunder: but it is worth obſerving, that the weight of the leaves, in proportion to that of the bulbs, (for I weighed them ſeparately) was greater in thoſe at two feet, than in thoſe at three feet. As ſoon as this experiment is completed, I ſhall tranſmit a particular account of it to the ſociety.

Upon the whole of my experience, I recommend this plant very earneſtly to the attention of farmers; and am much miſtaken, if it will not be found, under proper management, to be one of the beſt hitherto cultivated, eſpecially as a *late ſpring food.*

I recommend

I recommend the earlieſt ſeaſon for ſowing, if the land can be got ready; but any time in April, or even the beginning of May, will anſwer perfectly well, if the ſeaſon be not uncommonly dry at the time of planting: and I adviſe three feet ſquare as the beſt diſtance for the plants. The greateſt attention too, ſhould be paid to ſaving ſeed only from the very beſt bulbs.

I am, ſir,

Your very humble ſervant,

THOMAS BROUGHTON.

Twerton, Dec. 7, 1793.

Article XXIV.

Concluſion of account of Experiment on Turnip-Cabbage.

SIR,

I AM now to complete the account which I began in a former letter, of my laſt year's experiment on the turnip-cabbage.

On the 19th of December, I took in 40 large wether ſheep, weighing on an average more than 25lb. per quarter, the property of a neighbouring butcher. A ſmall piece of the turnip-cabbages was

was hurdled off for them, which they devoured very greedily. Late in the evening they were turned back into a very ſmall paddock adjoining, about 2½ acres, which had been before eaten down bare. The next morning, nearly as much freſh ground was taken into the former pen as would ſerve them for the day, and the ſheep put back to the paddock in the evening as before. This method was followed through the whole of the experiment; excepting that, after a few days, the freſh pen was kept ſeparate from the ſtale one, and the ſheep only ſuffered to remain in the former, about two hours in the morning, and two in the afternoon; the reſt of the day they remained in the ſtale pen, by which means many ſtalks, not wholly conſumed, were afterwards eaten. I kept theſe ſheep exactly two months; when the quantity conſumed was meaſured, and found to be a trifle more than one acre and a quarter ſtatute meaſure. Though theſe ſheep were kept in a fatting way, yet they had no hay given them, twice only excepted: when, after a conſiderable fall of ſnow, ſucceeded by rain, and that by a ſevere froſt, the owner ſent a little hay upon a horſe, of which they ate but little, finding no difficulty in coming at their green food, in ſpite of the deep ſnow. My neighbours were not only ſtruck with the great advantage of this crop over common turnips in this reſpect; but likewiſe in wet weather, when the

ſheep

ſheep were able to walk about among them, without the leaſt detriment or waſte. It eſcaped my memory to weigh a few of theſe ſheep when firſt taken in; but this was done afterwards. On the 6th of January, four ſheep were weighed, and the ſame four again at the expiration of the experiment—the reſult was as follows:

	S.	*lbs.*		*S.*	*lbs.*	
No. I. weighed	9	4	Jan. 6th,	9	14	Feb. 12th.
No. II. ——	8	8		8	19	
No III. ——	9	5		9	9	
No. IV. ——	10	11		10	14	

It is to be obſerved, that through the careleſsneſs of my ſervant, the ſheep were weighed on a full ſtomach in the firſt inſtance, and not half ſo full in the ſecond. Some of theſe ſheep were killed immediately from the turnip-cabbages, and died very fat, and in the beſt order. I never ſaw one of them ſcour through the whole experiment. I have reaſon to conclude, that an acre of turnip-cabbages will keep 40 ſtock ſheep at leaſt two months, without a morſel of hay.

The remainder of the crop was reſerved for my own uſe—part of which was eaten on the ground by my own ſheep, and part brought off at different times to ſerve my cows, horſes, and ſheep, at home. On bringing them home, I always cut off the leaves, with which I ſerved my cows and ſheep, and ſtowed away the bulbs in the barn and in any open ſhed. As ſoon as the leaves of the firſt load were conſumed,

ſumed, another load was brought down and managed in the ſame manner. When all the leaves were gone, we began upon the bulbs, which were cut into pieces, and given to the horſes, cows, and ſheep, all of which were uncommonly fond of them. The laſt were conſumed about the firſt week in May, at which time they were as good as ever; and induced me to wiſh moſt earneſtly that I had ſaved a much greater quantity. I ſee no reaſon to doubt but they might be preſerved perfectly good till after haymaking.

In addition to the account of this experiment, it may not perhaps be unacceptable, if I ſhould ſtate the particulars of another experiment I have made on this plant. Concluding that it might be a valuable addition to the liſt of vegetable ſea-ſtores, I ſent two hamper-baſkets of them on board a veſſel bound for Jamaica. The plants, cut in a dry day, were diveſted of their leaves and roots, and packed with dry ſtraw in hampers with the ſtalks downward. The following particulars were communicated to me by the Captain on his return.

December 4th, 1792, two were dreſſed in the following manner: The tops and ſtalks being cut off, and the rind ſtripped off, they were cut into ſlices, and boiled in *freſh* water, until they were ſoft, which uſually took half an hour; they were then preſſed and brought to table as maſhed turnips, for which they were an excellent ſubſtitute,

but

but much ſweeter. We continued to uſe them in this manner, till towards the end of the month, when the weather becoming much warmer, we obſerved them not to be ſo good, and found that thoſe which were hung up near the cabin-windows, in the pantry, and in the ſtair-caſe, began to wither and ſhrivel, and appear yellow. Thoſe which remained in the baſket, with their roots downward, were in a much better ſtate. On the firſt of January 1793, ſome of thoſe in the latter ſtate were dreſſed as follows:—The roots and tops being taken off, but the rind left on, they were boiled in *ſalt* water with the ſalt beef; the ſalt of which did not appear to have affected the inſide much, after boiling three hours; they were then taken up, and the inſide ſcooped out of the top, and were found to be much ſweeter and better, and the colour yellower, than any of the former ones boiled in freſh water.

In addition to theſe minutes of the Captain, I have to remark, that three or four plants, which remained when they arrived at Kingſton, were delivered to my brother Dr. Broughton; who hung them up in his pantry. Three weeks after they were placed there, he obſerved one of them to throw out ſome green ſhoots; which, though diveſted of its roots in England, he planted in his garden, where it took root, and was growing very luxuriantly at the time the veſſel left the iſland, nearly three months from the time they were cut in England.

I conclude

I conclude from theſe circumſtances, that they might be uſed to great advantage as a vegetable ſea-ſtore; and that they would afford a moſt wholeſome and agreeable food for ſailors through long voyages, at a time when every other freſh vegetable was entirely ſpoiled.

A neighbour of mine intended to have claimed the premium this year, for the cultivation of this plant: but unfortunately, more than two parts in three of his crop have been deſtroyed by the underground grub. My crop has likewiſe ſuffered much from this cauſe, but not in ſo great a degree as my neighbour's.

In planting out two acres this year, I left about a fourth of the land undunged, the reſt was well manured with rotten ſtable dung. To my great ſurprize, I found that thoſe which were planted without dung throve quite as well as thoſe planted in the manured part of the field. The land was a worn-out wheat ſtubb, on a thin free-ſtone grit: and I am inclined to think, that no other plant of the cabbage or turnip tribes would come to ſuch perfection on the ſame ſoil, unmanured. If any thing of importance ſhould occur in my future cultivation of this plant, I ſhall communicate it to you,

And am, your humble ſervant,

THOMAS BROUGHTON.

Twerton, Nov. 8, 1794.

Article XXV..

A Method of Potatoe Management for preventing the Curl.

[In a Letter to the Secretary.]

SIR, *Bodmin, Nov.* 7, 1794.

IN reply to your favour of the 5th inſtant, my mode of potatoe tillage is as follows:—If dry weather in March, I begin to till my early crops, known here by the name of the red-noſe kidney. The faireſt and beſt-ſhaped potatoes are carefully picked out from the others, and cut in ſmall pieces about the ſize of half a walnut; ſome contain one eye, others two. The ground being in good tilth by often ploughing, I dreſs according to the ſtrength of my grounds, from 20 to 60 loads per acre, of a compoſt of ſcrapings of the road, head-ridges, and farm-yard dung; when the plants are about four or ſix inches high, they are hand-hoed; and if any curled ones appear, they are carefully rooted out, together with the ſets that bare them; when about a foot high, they are again weeded, and the curled plants, if any remain, are carefully rooted out. It is alſo neceſſary to look them over juſt as they are coming into bloſſom, and root them out if any curled appear.

I have for twelve years paſt tilled from ſix to ten acres for the market yearly. Thoſe intended as

ſeed

ſeed for my general market crops the enſuing year, are tilled at a diſtance from any other potatoe crop, and managed as above-mentioned. Since I have practiſed this mode, which is about ſeven years, the curled diſeaſe hath not injured my crops. My potatoes have been better than my neighbours. In the cheapeſt time, I never ſell under threepence per gallon, which weighs ten pounds, or at the rate of ſix ſhillings per ſack of 240lb.

The late crops are the Iriſh red, or painted Lord, tilled in April: they produce very plentiful crops, and continue very good from the beginning of December, till the kidneys are fit to draw, which is about the firſt or ſecond week in June. I have tilled different ways, ſome by drilling about two feet apart, and twice or thrice earthed up with the double-mould plough: ſome in ridges five feet wide, leaving between each ridge about 18 inches of ground not tilled, which is thrown between the plants after hoeing: others I have tilled throughout the field, about ten inches aſunder between each plant. Many of this laſt tillage get green and not fit for uſe. The two former modes anſwer beſt with me; if the crops are kept clean about 100 ſacks in the average. In ſome ground I have had 140 ſacks per acre.

I am, Sir,

Your very obedient ſervant,

JAMES CHAPPLE.

Article XVI.

A particular Return of an Experiment made in Sheep-Feeding.

[By John Billingsley, esq.]

THE diverſity of opinion which has long prevailed, reſpecting the moſt profitable breed of ſheep, induced me, in the year 1792, to endeavour, by fair and unbiaſſed experiment, to reſcue the ſubject, if poſſible, from that degree of uncertainty in which it ſeemed to be involved.

A fair opportunity preſented itſelf at the ſociety's general meeting in December 1791. Two farmers of eminent rank in the breeding line, one of whom was a warm partizan in behalf of the new Leiceſter, and the other of the Cotſwold ſheep, agreed to ſubmit to the following experiment under my guidance and direction: namely, that five two-tooth wedders (ſheep about $1\frac{3}{4}$ year old) of their reſpective ſtocks, ſhould be ſent to my farm the enſuing January; that they ſhould be kept together one whole year, be regularly folded every night, and in all reſpects treated alike. That they ſhould be killed at the ſociety's annual meeting in December, and that a public teſtimony ſhould be given of the merit or demerit of each.

A trial ſo fair could not fail attracting the notice of all perſons intereſted in the event, and a propoſal

PARTICULARS of an EXPERIMENT on FATTING SHEEP,

MADE IN THE YEAR 1792,

By J. BILLINGSLEY, esq; ASHWICK-GROVE, SOMERSET.

SORT.	No.	*Live Weight.*	*Value.*	*Consumption of Food.*	*Wool——Value.*	*Live Weight.*	*Increase.*	*Dead Weight.*	*Amount sold for.*	*Nett Produce.*	
Leicester	5	Jan. 3, 1792. 664lbs. at 3d.	*l. s. d.* 8 6 1½	From April 3 to Ap. 10. lbs. Cabbages 29 Hay - - 91 From June 20 to June 27. lbs. Green Vetches 840 From Dec. 1 to Dec. 8. lbs. Cabbages 445 Hay - - 35	lb. oz. *l. s. d.* 39 12 at 9*d* 1 9 10	Dec. 8, 1792. 762lb.	97½lb.	lbs. Carcase 426½ Blood 30 Entrails 50½ Fat - 51 Heads, &c. 49¼ Skins - 85¾ First Cost —	at 5d. per lb. *l. s. d.* 8 17 11 1 9 10 Wool. 10 7 9 8 6 1½	£. 2 1 7½	These Sheep were, in the BUTCHER's phrase, good meat.
										N. B. Value of the Skins £1 2 6 Fat at 4d. per lb. 0 17 0	
Gloceſter or, Cotſwold	5	Jan. 3, 1792. 697½lbs. at 3d.	*l. s. d.* 8 14 4½	From April 3 to Ap. 10. lbs. Cabbages 29 Hay - - 120 From June 20 to June 27. lbs. Green Vetches 1050 From Dec. 1 to Dec. 8. lbs. Cabbages 615 Hay - - 51	lb. oz. *l. s. d.* 36 2 at 1*s.* 1 16 0	Dec. 8, 1792. 952½lb.	255lb.	lbs. Carcase 534 Blood 38½ Entrails 70½ Fat - 66¼ Heads, &c. 57 Skins - 97 First Cost —	at 5d. per lb. *l. s. d.* 11 2 6 1 16 0 Wool. 12 18 6 8 14 4½	£. 4 4 1½	These were not ſo fat as the Leiceſter.
										N. B. Value of the Skins £1 5 0 Fat - - - - - 1 2 0	
South-Down	4	Jan. 3, 1792. 379lbs. at 3d.	*l. s. d.* 4 14 9	From April 3 to Ap. 10. lbs. Cabbages 29 Hay - 70 From June 20 to June 27. lbs. Green Vetches 750 From Dec. 1 to Dec. 8. lbs. Cabbages 388 Hay - - 41	lb. oz. *l. s. d.* 14 8 at 21*d.* 1 5 4	Dec. 8, 1792. 522½lb.	143½lb.	lbs. Carcase 307½ Blood - 20½ Entrails 42¼ Fat - - 37¼ Head 34½ Skin - 51¼ First Coſt —	at 5d. per lb. *l. s. d.* 6 8 0 1 5 4 Wool. 7 13 4 4 14 9	£. 2 18 6	These were good meat.
	1	died in April.								*N. B.* Value of the Skins £0 10 0 Fat - - - - - 0 12	
Wilts	5	Jan. 3, 1792. 559½lbs. at 3d.	*l. s. d.* 6 19 10	From April 3 to April 10. lbs. Cabbages 29 Hay - - 125 From June 20 to June 27. lbs. Green Vetches 1035 From Dec. 1 to Dec. 8. lbs. Cabbages 516 Hay - - 42½	lb. oz. *l. s. d.* 19 8 at 15*d.* 1 4 4	Dec. 8, 1792. 860lb.	300½lb.	lbs. Carcaſe 487 Blood - 34½ Entrails 85¾ Fat - 54¾ Heads - 60½ Skins - 87¾ First Coſt —	at 4d. per lb. And ſomething over. *l. s. d.* 8 5 3 1 4 4 Wool. 9 9 7 6 19 10	£. 2 9 9	These were not half fat, and were on that account, ſold at 1d. per lb. leſs.
										N. B. Value of the Skins £.0 15 0 Fat - - - - - 0 18 3	
Dorſet	5	Jan. 3, 1792. 646lbs. at 3d.	*l. s. d.* 8 1 6	From April 3 to April 10. lbs. Cabbages 29 Hay - - 123 From June 20 to June 27. lbs. Green Vetches 1050 From Dec. 1 to Dec. 8. lbs. Cabbages 526 Hay - - 43½	lb. oz. *l. s. d.* 22 12 at 14*d.* 1 6 6	Dec. 8, 1792. 921½lb.	229½lb.	lbs. Carcaſe 573 Blood - 33½ Entrails 70½ Fat - 75¾ Heads, &c. 60½ Skins - 92¾ First Coſt —	at 5d. per lb. *l. s. d.* 11 3 9 1 6 6 Wool. 12 10 3 8 1 6	£. 4 8 9	These were good meat.
										N. B. Value of the Skins £.0 15 0 Fat - - - - - 1 5 3	
Mendip	5	Jan. 3, 1792. 406½lbs. at 3d.	*l. s. d.* 5 1 7	From April 3 to April 10. lbs. Cabbages 29 Hay - - 87½ From June 20 to June 27. lbs. Green Vetches 870 From Dec. 1 to Dec. 8. lbs. Cabbages 417 Hay - - 41	lb. oz. *l. s. d.* 19 8 at 15*d.* 1 4 4	Dec. 8, 1792. 636lb.	229½lb.	lbs. Carcaſe 370¾ Blood - 26½ Entrails - 53 Fat - 45 Heads, &c. 45 Skin - - 73¼ First Coſt —	at 5d. per lb. *l. s. d.* 7 14 7 1 4 4 Wool. 8 18 11 5 1 7	£. 3 17 4	These were but indifferent meat.
										N. B. Value of the Skins £.0 12 6 Fat - - - - - 0 15 0	

RECAPITULATION.

Dorſet	5 Sheep, paid for 48 Weeks,	£4	8 9	or near 4½d. per Week per Sheep	Southdown	4 Sheep, paid for 48 Weeks,	£2 18 7 or near 3¼d. per Week per Sheep
Gloceſter	5 ditto ditto	4	4 1	or near 4¼d.	Wilts	5 ditto Ditto	2 9 9 or near 2½d.
Mendip	5 ditto ditto	3	17 4	or near 4d.	Leiceſter	5 ditto Ditto	2 1 7 or 2d. and 1s. 7d. over.

ſal was made and ſeconded, that other ſorts of ſheep to which any of the company might be partial, ſhould be added, for the purpoſe of aſcertaining their reſpective merits.

Accordingly, ſix ſorts were ſent to me in the beginning of January 1792, viz.

5 Leiceſter from Mr. More, of Charlcote, Warwickſhire.
5 Cotſwold from Mr. Pacey, of Northleach, Gloceſterſhire.
5 South-Down from Mr. Gale, of Stert, Wilts.

15 of the polled breed.

5 Dorſet from Mr. Hix, Caſtle-Cary, Somerſet.
5 Wilts from Mr. Tinker, Chittern, Wilts.
5 Mendip from Mr. Parſons, Blagdon, Somerſet.

15 of the horned breed.

With a view of proceeding regularly and impartially in the experiment, I had the whole lot weighed after twelve hours confinement without food. This was done on the 3d of January 1792, and the weighing was continued regularly every month till the time of their death. The reſult will appear in the following tables; atteſted by

James Jordan	Joſeph Horler	Jo. Emery
James Chappell	John Hawkins	N. Reynolds
George Selway	Tho. Loxſtone	George Watts
Thomas Huiſh	James Loxſtone	J. Thorn.

THIRTY SHEEP WHEN WEIGHED.

1792.	Jan. 3.	Feb. 7.	March 13	April 3.	May 8.	June 4.	July 6.	Aug. 10.	Sept. 5.	Oct. 12.	Nov. 8.	Dec. 1.	Dec. 8.	
Leiceſterſhire. Mr. MOORE.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	
No. 1 -	117	107	110	110	114	116	114½	99	109½	114	120½	124½	126½	Increaſe in 12 months 97½lb. Wool, 39lb. 12oz.
2 -	129	118	117	117	125	130	126½	132	137	139	146	152	152	
3 -	139½	129	126	123½	128	134	134	137	141½	145½	154	161	162	
4 -	145	136	135	131	137½	143½	140½	142	146	146½	151½	156	155½	
5 -	134	121	120	120	134	138	139½	139½	145	147	156	164½	166	
	664½	611	608	601½	638½	661½	655	649½	679	692	728	758	762	
Gloceſterſhire. Mr. PEACY.	lb.	lb	lb.	lb.	lb.	lb.	b.	lb.	lb.	lb.	lb.	lb.	lb.	
No. 1 -	124	123	131	134	149	151½	152	154½	159	161	169	174	175	Increaſe 353lb. Wool, 36lb. 2 oz.
2 -	152	150	161	158½	174	182½	182	187½	196½	182	198	209	214½	
3 -	139½	134	149	141½	155½	163	161½	162	159	158	170	178	183½	
4 -	133½	126½	143	126½	137	145	150	156½	160	175½	172	177½	181½	
5 -	148½	144	149	139	150½	163	165	169	166½	164½	187	193	198	
	697½	677½	733	699½	766	805	810½	829	841	841	896	931½	952½	

THIRTY SHEEP WHEN WEIGHED.

1792.

	Jan. 3.	Feb. 7.	March 13	April 3.	May 8.	June 4.	July 6.	Aug. 10	Sept. 5.	Oct. 12.	Nov. 8.	Dec. 1.	Dec. 8.
Suffex. Mr. MIGHILL.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
No. 1 -	99½	93	90	87	dead.								
2 -	89	87	93	90½	101	110	112	115½	119	120½	126½	126½	126½
3 -	97½	92	95	97	105	115½	122	123	126	126	135	132½	132½
4 -	97	90	92	97½	107½	112½	120½	110	119½	116	131	134	136
5 -	95½	94½	99	99½	105	109	111	109	108½	129	123	126½	127½
	478½	456½	469	471½	418½	446½	465½	457½	473	491½	515½	519½	522½

Increase, 143¾lb.
Wool of 4 Sheep, 14lb. 8 oz.

Wiltſhire. Mr. GALE.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
No. 1 -	110½	113½	118	121	138½	144	150	146	153½	163½	176	184	183½
2 -	110	112	125	125½	133	141	151	154½	159½	146	160	164½	165
3 -	108½	108½	108	leg	broke	123	131½	131	141½	148½	159½	170	170
4 -	119	123	130	123	135	138½	151	147	146½	153	165	168½	166½
5 -	111½	109½	123	124	137	143	151	140½	155½	161	172	178	175
	559½	566½	604	493½	543½	689½	734½	719	756½	772	832½	865	860

Increaſe, 300¾lb.
Wool, 19lb. 8 oz.

THIRTY SHEEP WHEN WEIGHED.

1792.	Jan. 3.	Feb. 7.	March 13.	April 3.	May 8.	June 4.	July 6.	Aug. 10.	Sept. 5.	Oct. 12.	Nov. 8.	Dec. 1.	Dec. 8.	
Dorsetshire, Bred in Somerset. Mr. Hicks.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	
No. 1 -	134	134	147	144	154½	162	166½	166	173	171	182	185	188	Increase 27½lb. Wool 2½lb. 12 oz.
2 -	122	123	133	131	142½	148	153½	149	157½	164	176	180½	180	
3 -	125	124½	137	134	146½	153	160	159½	164	166	165	174½	177½	
4 -	139	141	149	147½	163	165	173½	176	179	181	190	196	199	
5 -	126	124½	133	132	145	151	159½	156½	165	166	172	176	177	
	646	647	699	688½	751½	779	813	807	838½	848	885	912	921½	
Mendip. Mr. Parsons.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	
No. 1 -	76	78½	86	86½	93	98½	103½	106½	109½	109	114	118	118½	Increase 22½lb. Wool, 1lb. 8 oz.
2 -	75	74½	81	81	92½	94½	98	95	97	104½	108½	110½	111½	
3 -	88	88	97	94	103	109	118	113	121	126½	132	135	137	
4 -	84½	88½	96	97	107	112	120	114	118½	124	134½	140½	140	
5 -	83	84½	89	88	93	99½	105½	106	112½	116	125½	132	129	
	406½	414	449	446½	488½	513½	545	534½	558½	580	614½	636	636	

Uninfluenced and unbiaſſed, I waited with anxiety the reſult of an experiment, which I conſidered as fraught with conſequences of the firſt importance to the breeding counties of this kingdom. And if it has not been ſo concluſive as might have been wiſhed, no blame, I truſt, is imputable to me.

I cannot agree in opinion with the gentlemen unto whom the examination of my ſheep experiment was committed. If I recollect right, they gave the preference to the South-Down, and after them to the others in the following order, viz. Gloceſter, Leiceſter, Mendip, Wilts, and Dorſet.

Now it appears to me from the nett produce, and alſo from the quantity of food conſumed, that either the South-Down or the Mendip ſhould take the precedence, and that they ſhould rank thus: South-Down or Mendip, Dorſet, Gloceſter, Leiceſter, Wilts. The difference in the value of the ſkin and fat is not ſufficient to alter this concluſion.

At firſt view the Gloceſter appear to produce moſt profit, but when it is conſidered that they ate nearly one-quarter more food than the Mendip, and one-eighth more than the Dorſet, ſuch an inference would be erroneous.

To the nett profit ſhould be added four or five ſhillings per head for manure, as they were regularly folded.

I think the long wool was over-rated in compariſon with the ſhort.

The

The reſult of this experiment was not ſo favourable to the Leiceſter breed as at its commencement I thought it would be.

They were ſent in high condition, and had from their appearance been exceedingly well kept. The change of food and climate appeared to affect them more than the other ſorts, and though they were fed with hay of prime quality, and turnips perfectly ſound and ſweet, they invariably loſt weight the firſt four months; nor did they in the ſubſequent ſummer months exhibit any great progreſſive improvement, as the ſtatement plainly ſhews: one of them, indeed, appeared by his coat to be unhealthy, and this was confirmed at his death by an apparent defect in the lungs; and conſequently ſome allowance muſt be made for this circumſtance.

We were alſo told by the great breeders of the North, who attended at the ſociety's annual meeting, when they were ſlaughtered, that Mr. Moore had not done juſtice to his county, for that the ſheep he ſent were the worſt of the kind they ever ſaw. If this be the caſe, Mr. Moore is ſurely to be blamed; for as he is one of the Tup Society, he could not be at a loſs for a good ſort, even on a ſuppoſition that he had none of his own.

The Gloceſter or Cotſwold ſort (the ſheep immediately in competition with the Leiceſter) were the property of Mr. Peacy of Northleach. They appeared to me to be the offſpring of a croſs with the

the Diſhley or new Leiceſter breed, and conſequently approaching very nearly to the ſame ſpecies, only in a larger frame; they conſumed more food, grew more, and ſeemed to be a hardy, uſeful ſheep.

The Wiltſhire were a tall, bony, thin-carcaſſed ſheep, fit to walk two or three miles to a fold, and to be kept till three or four years old for the purpoſe of manuring a down farm; they ate ravenouſly, increaſed greatly in ſize and weight, but did not fatten.

The Dorſet, the South-Down, and the Mendip, approach nearly to an equality in point of profit, and may be conſidered as valuable ſorts both to the breeder and the grazier; but were I to take my choice of a flock, calculated to endure ſeverity of climate and ſcantineſs of paſture, I ſhould prefer either the South-Down, or the beſt ſort of the native Mendip. And in this idea I am juſtified by obſervations made in the courſe of this experiment.

In the winter ſeaſon, when the Leiceſter, the Cotſwold, the Wilts, and the Dorſet ſorts, were unceaſingly devouring hay and turnips, the South-Down and the Mendip were traverſing the field in ſearch of the ſcanty pittance of graſs then to be found, and I verily think that their wintering was not worth as much as the others by three or four ſhillings per head.

Theſe ſorts (particularly the Mendip) are ſuſceptible of great improvement, both in the carcaſe and

and wool, by a more judicious ſelection of rams, and by a more ample proviſion of food for the ewes and lambs during the months of March and April, at which time, according to the preſent plan, they are in a ſtate of ſtarvation.

I have now ſtated, and I truſt with impartiality, the riſe, progreſs, and reſult of this experiment; and I now leave my readers to their own determination, concluding with a ſincere wiſh that further trials may be made, by which the concluſion drawn from this may be either confirmed or contradicted.

I am, Sir,

Your obedient ſervant,

J. BILLINGSLEY.

End of the Seventh Volume.

GENERAL INDEX

TO THE

SEVEN VOLUMES

OF THE

Bath and West of England

SOCIETY's PAPERS,

ON

AGRICULTURE, PLANTING, &c.

GENERAL INDEX

TO THE

SEVEN VOLUMES.

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